JBA

Sales Executives

London based c.£12K on quota plus car

One of the leading computer manufacturers is continuing to expand its sales force and is therefore looking for several sales executives to join a highly motivated and successful team.

Applicants must have a proven sales record in the sales of minis or medium range computers, or have extensive experience in the services industry.

These are excellent opportunities for above average earnings in a professional environment.

Contact: Jim Baker

COBOL Programmers

Berkshire based up to £6,000

Our client, a leading software house, has immediate vacancies for programmers to work on the development of a variety of systems.

Candidates must have two years experience of COBOL in a commercial environment, preferably on a mainframe such as IBM, ICL, Honeywell, etc. Knowledge of real-time, communications or database applications would be an advantage.

The Company have an extensive growth plan and are willing to provide a training programme on new machines.

Attractive salaries and benefits with opportunities to travel.

Contact: Jim Baker

Technical Advisers Projects Managers

Herts £4,000-£6,000+car allowance

Excellent opportunities have arisen with a small business systems manufacturer for experienced software/commercial support persons to provide liaison and technical aid to a wide ranging customer base. Candidates will have a sound and varied commercial programming and systems analysis background, coupled with proven man-management and post sales experience. Since the key function is client liaison appointees will be personable individuals with the ability to communicate effectively with technical managers.

A substantial starting salary will be paid to attract high calibre people.

Contact: Margaret Stevens

Manager Commercial Applications Group

London to £8,000

A well established computer bureau has a requirement for a d.p. professional to head up the commercial applications team. The successful candidate will have a broad background in systems analysis, programming and project control, together with experience of man-management. The Company offer an excellent computing service based on two large systems supplying integrated timesharing and remote batch services throughout the U.K. COBOL/FORTRAN are the main languages used, while the work content is mostly to analyse customer requirements and to identify solutions.

Excellent salary and fringe benefits include a bonus and a profit sharing scheme.

Contact: Margaret Stevens

Australia

Offers a new start and good income for computer professionals either planning to emigrate or to work there for a year or two. It's worth considering and we can help you make the decision.

In conjuction with our Australian associates we provide in the early stages an advisory service:

- we look at your past experience;
- inform you objectively of your career prospects;
- salary expectations;
- the type of position you could fit into.

In addition we advise on the following:

- aspects of getting there;
- shipping of personal effects;
- transference of funds;
- information on standards of living (costs, etc.)

We will assist on arrival, settling in and getting initial accommodation.

We don't necessarily line you up with a job before you get there—we offer a choice of prospects from which you can choose. It's a new, unique service and if you are seriously contemplating Australia give us a ring and have a chat about it.

Contact: Mike Creamer

For further information on any of the above vacancies please contact the appropriate consultant. If your qualifications do not match the above positions but you are seeking other opportunities please contact us anyway.

JAMES BAKER ASSOCIATES
International Personnel Consultants
16 Maddox Street, London W.1. Tel: 01-491 4478

Assembler Programmers

To £6,000

Watford Area

These are rather special opportunities for rather special people – people who wish to take an immediate step forward in salary and responsibility, people who seek the flexibility to shape and progress their own careers with a successful and rapidly expanding company.

The posts offer:
- Fast (we mean fast) promotion on merit.
- Technically demanding work.
- The opportunity to meet clients in the U.K. and Europe.
- A pleasant, unconventional environment.
- An interesting and valuable benefits package.

Experience ? – Well, system programming on a Nova or similar machine operating under RDOS would certainly be a big plus.

Interested ? Then please phone Mike Gernat on 01-229 9239 (office hours) or 076384-618 (evenings – if more convenient).

Technomark, King House, 8/11 Westbourne Grove, London, W2 4UA

Technomark
Engineering and Technical Recruitment

FORMDESIGN COMPUTER STATIONERY & BUSINESS FORMS
for HIGH QUALITY
COMPETITIVE PRICES
QUICK DELIVERY
plus FIRST CLASS SERVICE
formdesign limited
HALL STREET DUDLEY WEST MIDLANDS U.K.
TEL (0384) 57461 TELEX 338467

COMPUTER WEEKLY International
NUMBER 78
THURSDAY, NOVEMBER 10, 1977

ACCOUNTS PACKAGES
nsc
MARKETED IN GERMANY · CANADA
USA · UK · EIRE
15 CROSS STREET
MANCHESTER M2 1WF
ENGLAND
TEL: 061-832 9987

Nords in bid for US simulators

NORWEGIAN Nord-50 and Nord-10 minicomputers are the basis of three of the four bids being entered for a US Air Force simulator contract.

The requirement is for 18 simulators for the new General Dynamics F-16 fighter, which will be used to train pilots to fly 1,000 of the USAF's total complement of 3,000 F16s. Simulators are likely to be required for the other 2,000 machines, leaving the winner of the current contract well placed for further business.

The identity of the bidders is secret, but the two UK-based simulator builders, Redifon and Link-Miles, were ruled out on security grounds, which confined the bid to US companies. Singer-Link-Miles, Grumman and Goodyear are likely contenders.

The three bids involving Norsk Data minis include a complex of either three or four Nord-50 32-bit arithmetic processors, front-ended by the new 16-bit Nord-10/S.

The applications software will be written by the contract winner, but Norsk Data systems software, including Fortran and program development tools, will be used.

All three contenders bidding Nord systems are using the same basic concept, but each is proposing different complements of memory and peripherals. The fourth contender is bidding a US mini, likely to be a 32-bit machine from Systems Engineering Laboratories.

Nord minis have never before been used in aircraft simulators, but they are handling other simulation tasks, including systems for nuclear power plants and currents in the Baltic Sea. The contract is expected to be awarded tomorrow (Friday).

The high regard in which the Nord minis are held among the scientific community is emphasised by the fact that CERN, the Centre for European Research into Nucleonics in Geneva, now has 70 of them.

Two networks are being established in Scandinavia using Nord-10 minis. Scannet — linking research establishments in Stockholm, Helsinki, Copenhagen, Gothenburg, and Oslo — is a store-and-forward message switching system for information exchange, and Uninet is a planned pan-Scandinavian packet-switched network which will enable universities to share their computing power.

DG European sales chief

Ray Fortune

ALL Data General's area managers in Europe now report to Ray Fortune, who has been appointed to the newly-created post of sales director, Europe.

Until now Fortune has been based in London as area manager for North West Europe. His new job takes him to Data General's European headquarters in Paris.

Ray Piggot, formerly UK national sales manager, has succeeded Fortune as area manager North West Europe. In this position he has responsibility for Data General's activities in the UK, Belgium and the Netherlands.

TP monitor launch

TRANSACTION processing has moved on to another line of small machines, with the announcement by Interdata of the Itrac TP monitor for its 32-bit minicomputers. The product was developed by Interdata's European software group based in the UK.

Third world urged to limit imports

TO save on spare parts and deploy their computer resources more effectively, developing countries should limit the variety of computers they import.

This view was expressed by Norman Revell, a lecturer at the City University Business School, London, who visited the International Conference on Computer Applications, held in Bangkok.

Speaking at a meeting of the BCS Specialist Group for Developing Countries, Revell reported that the conference delegates differed sharply on whether developing countries could learn from the experience of advanced countries and skip the early steps of computer development, or whether they needed to start from scratch and learn from their mistakes.

Moral dilemma over Interpol's moves for own system

ACCORDING to reliable sources, Interpol, the international police organisation, is working towards the establishment of a computer centre at its St Cloud headquarters, outside Paris.

Even though Interpol does not now have its own computers, it does have access to the computerised information systems of the US government. Interpol is believed to have similar access to the automated government records of Germany, France, the UK, the Netherlands and those of many other nations.

Interpol's access to these records and the possibility of automated access in the near future raise serious questions for governments around the globe. Should they buy computers for Interpol?

In recent months, Interpol has come under scrutiny by various governments, including those of the US, West Germany, the UK, the Netherlands and, it is believed, Canada.

In addition, the organisation has become the object of inquiries by the National Commission on Law Enforcement and Social Justice (NCLE), which has offices in Washington, Los Angeles and 18 other US cities.

NCLE itself is an unusual public interest group as it is sponsored by the controversial Church of Scientology.

A report prepared last December by the US General Accounting Office (GAO) stated that Interpol had access to criminal records via the computerised National Crime Information Centre (NCIC), operated by the Federal Bureau of Investigation and a similar system operated by the US Treasury Department.

In addition, according to GAO, Interpol can obtain such items as local police information and even copies of US citizens' passport photographs.

While the GAO report did not specifically accuse Interpol of abusing its privileges, it did state that in its limited study it determined that "requestors (of information) often did not furnish adequate documentation to support their requests." The report then detailed several criticisms of Interpol.

According to GAO, while Interpol could not be specifically accused of acting in ways that were different from its claims, "there is no practical way to assure (its) compliance" with regulations.

When an NCLE investigator, Vaughan Young, travelled throughout Europe recently, he was falsely accused of counterfeiting his copy of the GAO report — and of impersonating a US government official.

Young claims to have accurately identified himself, and he even appeared at Interpol offices in an attempt to clear up the matter.

The GAO report he was accused of fabricating is readily available to anyone who is curious.

Interpol sent his name and its accusations to the various Interpol bureaux around the world, and a derisive story about Young was planted in the West German Press.

Making their mark in Munich

One of 16 UK companies that appeared together at Systems 77 in Munich was the Data Recording Instrument Co, which exhibited some of its peripheral equipment range on the stand pictured here.

The joint UK venture was backed by the British Overseas Trade Board and sponsored by the Business Equipment Trade Association.

One of the other firms that took part, Compeda, was making its first major public presentation at any exhibition. The main presentation on the Compeda stand was of Gaelle, Compeda's design system for the automatic layout of printed circuit boards and integrated circuits.

Another big crowd puller among the UK exhibits was a demonstration on the GEC stand of Bildschirmtext, the German equivalent of the UK Post Office's teletext service, Viewdata. The German Post Office runs Bildschirmtext on a GEC 4080.

About 22,000 visitors attended Systems 77 over the five days of the show, 50% more than went to Systems 75. A total of 470 companies took stands, including almost every major US and European computer equipment manufacturer.

V77s replace ICL systems in Sydney

THE former Varian Data Machines, now Univac Mini Computer Operators, has given ICL a rough ride in Australia. V77 minicomputers have been ordered to replace or supplement small ICL systems at four companies, two of which are using the highly successful 2903.

A 1902T at Berlei Hestia in Sydney will be replaced by a V77-600, and Paul Hamlyn, also in Sydney, is putting in a 77-600 alongside its 1901A.

In Melbourne, perhaps the biggest disappointment for ICL is that a reservation system, for Flag Motels, run as a pilot on a 2903, is to be transferred to V77 minis at four sites. But Flag still runs two 2903s.

Also in Melbourne, a health insurance fund is to replace its 2903 with a V77.

Overall, ICL's position in Australia appears to have been weakening, with few orders yet placed for large 2900s, and the Queensland government has decided to replace its 1900 series machine with a Univac 1100/82 (CWI, May 5).

Brazilian clamp-down on foreign minis

TIGHT restrictions by the Brazilian government on the minicomputer and small systems business are planned to take their final form before the end of the year.

Central to the scheme is the effective exclusion of all but two overseas companies, and the government's own venture, from import or local manufacture of machines.

Small systems companies, from the giant multinationals to minor firms, are currently showing their wares to the Brazilians, in an effort to gain one of the two hotly contested contracts.

According to a South American trade expert, companies like DEC, Data General and IBM — with System 32 and 34 and possibly Series 1 — are less likely to gain rights in Brazil than the smaller ventures.

The Brazilian government will probably select a less powerful company, so as not to overpower the efforts of the government venture, Cobra.

Cobra has the rights to manufacture Ferranti Argus 700s in Brazil and has also concluded an agreement with Sycor to manufacture its Sycor 400 under an Argus 400 label (CWI, April 14).

The strategy for excluding the non-government-approved overseas companies from the market is not yet clear, but is likely to include prohibition from establishing a local factory, and high import tariffs.

Data General has already asked the US government to protest at the forthcoming Geneva Trade Conference.

EXPAND YOUR PDP11 WITH B.M.L.

INTERFACES
SUB-SYSTEMS
FAST DELIVERIES
COMPETITIVE PRICES

BML
BILLING MACHINES LTD.
CLIFTONVILLE ROAD
NORTHAMPTON
ENGLAND NN1 5BU
TEL (0604) 21911
TELEX 31504

How IBM deals with terrorist threats

THE recent battle between IBM and Forro Precision, Inc in a United States federal court evokes memories of some embarrassing revelations faced by the computer giant nearly three years ago. At that time IBM was discovered to be training its security forces to infiltrate outside organisations which, in IBM's opinion, posed a threat to the corporation.

On September 16 of this year, Forro Precision, a Woodland Hills, California, manufacturer of machinery used to build disc drives, was awarded $2.7 million when a jury determined that IBM had intentionally interfered with Forro's business practices in violation of California law. The charges stemmed from IBM's investigation of Forro's affairs, carried out with the aid of a former agent of the US Federal Bureau of Investigation.

Forro's victory, according to attorney Joseph M. Alioto jnr, was in part due to IBM's use of improper tactics to obtain a warrant to search Forro's premises. IBM had contended that its actions were justified because its secrets were being used by competitive disc drive manufacturers.

Sworn testimony describing the methods and naming some of the persons employed by IBM during its investigation are included in the record of the suits between IBM and Telex.

The jury in the Forro v IBM suit also found, in accordance with IBM's claims, that Forro used IBM's trade secrets in the course of making machinery for its customers. As a consequence, Forro was ordered to pay IBM nearly $261,000 in damages. Forro's attorney contends that Forro did not know that the specifications it received from its customers had come from IBM.

Two other charges made by Forro, that IBM violated anti-trust statutes and that Forro is entitled to punitive damages in addition to the direct damages it was awarded, resulted in no verdict. The jury, which must reach a unanimous verdict, was split in its opinions, and these charges will be re-examined in another trial.

The Forro suit is also related to another famous trial in the American computer business, that of a group called the San Jose Eleven. The persons involved in that case were accused by IBM of stealing trade secrets from IBM's San Jose, California, disc drive manufacturing facility. The eleven defendants were eventually cleared because IBM's agents had used improper methods to obtain the information on which the theft charges were based.

IBM's security policies also caused a stir in the United States in late 1974, when it was revealed that IBM had been training some of its employees in methods of infiltrating outside organisations, alleged terrorist groups that IBM felt posed a potential threat.

The possible use of IBM's security personnel as secret agents to spy on outside organisations was studied in a training course given to some IBM employees in November, 1974. At the time, IBM was apparently concerned about the danger posed by subversives in the United States and abroad. That concern may have been justified, because the very materials used in IBM's secret course were stolen and turned over to an anti-establishment newspaper in Berkeley, California, which published them only days after the course was completed.

At the time the documents were published, IBM's chairman, Frank Cary, said that he was "shocked" by the material used in the course. He also said that "it was only through a series of errors that (the material) was allowed to be used in even a single pilot class."

Dan Burnham, at that time IBM's top public relations man, at first said that the material was not prepared by IBM, but was developed by the International Association of Chiefs of Police (IACP) under contract.

Both of those statements proved to be misleading, as a letter from Quinn Tamm, then president of IACP, to Cary revealed.

Tamm's letter decried IBM's placing responsibility for the materials entirely on IACP. The course materials, according to Tamm, were developed to meet IBM's specifications and were reviewed by the computer manufacturer before they were used. The course Cary called a "pilot" was given on November 4-15 at IBM's Management Development Centre in Glen Cove, New York, but the course had been previously tested on six IBM executives.

At the time Tamm wrote the letter, which he also made available to the press, he said that IACP was contemplating a suit against IBM because of the corporation's statements. That idea was dropped later, and IBM admitted that Tamm's contentions were factual.

The controversial materials, part of a larger program dealing with corporate security, appeared in the form of a booklet entitled *Security: A Management Style/A Course of Instruction in Corporate Protective Services.*

While warning IBM's people about the dangers of taking matters into their own hands, the material suggests that IBM contemplates the use of "counter-terror operatives, skilfully placed," and to understand the use of the "right kind of provocateur."

The course materials state that IBM should be wary of terrorism in such places as South Africa and Latin America as well as the United States, and that the corporation should develop an internal apparatus for dealing with threats and disturbances. Among the organisations singled out as posing a danger to IBM are the leftist National Caucus of Labor Committees, the rightist American Nazi movement, and the Jewish Defense League.

IBM was told to develop trained operatives at each of its sites to deal with extremists, and to build a central corporate command to co-ordinate the local operations.

It is not known whether IBM changed its security procedures as a result of the ill-fated course, but the Forro, Telex and San Jose Eleven cases provide a glimpse into the company's methods of dealing with threats.

LETTER FROM AMERICA

By Hesh Wiener

Bugging the FBI and CIA

PHONE PHREAK Captain Crunch whom I wrote about in my last letter from America (CW, September 18) is back in the news.

In an interview carried in Professional Intelligence Reporter, a monthly newsletter published in San Francisco, former phone phreak John (Captain Crunch) Draper claims to have tapped the telephones of both the Federal Bureau of Investigation and the Central Intelligence Agency. The technique used by Draper was applicable to many systems in the United States, although changes in telephone switching equipment made during the last two years have made his method obsolete.

During the first half of this decade telephone company maintenance personnel were able to test a line while it was in use by dialling a special access number with internal signalling tones. This procedure allowed telephone company personnel to monitor the quality — and the content — of ongoing calls. Draper claims to have figured out the access code, and he tried out his discovery by using the telephone switching system to interconnect his line with those of others, including the local offices of US government police agencies.

Electronic mail is growing

"ELECTRONIC mail is ... adolescent sex — ... talks about it but nob... it," says Howard Ander... of the leading US autho... electronic mail.

Anderson, president ... Boston, Massachusetts ... Group consulting firm, ... that, like those ... electronic mail will ... up.

"Electronic mail will ... fastest growing part of the ... equipment and terminal ... during the 1980s," ... Anderson. The 33-year ... graduate of Harvard ... School claims that the ... booming market prom... generate a $1.2 thousand ... business in terminals, ... cessors, computers and ... nications services ... next five years.

In a recently-released ... on electronic mail, the ... Group notes that the ... cated user of automat... services has several opt... building an electroni... system. One obvious ... facsimile, but others incl... TWX-Telex and priv... typewriter message ... Newer technologies exp... available choices to ... word processing and ... ter-based message sy... (CBMS).

COMPUTER WEEKLY International

Inquiries about Computer Weekly International may be sent to these advertisement representatives:

CANADA
Colin H MacCulloch, International Advertising Consultants 915 Carlton Tower, 2 Carlton Street, Toronto Tel (416) 364 2269 Cables Inadcon, Toronto

FRANCE
Daniel Soubeyran, Compagnie Francaise D'Editions, 40 Rue du Colisee, Paris 8e Tel 010 331 225 7750

HUNGARY
Mrs M Brody Hungexpo Budapest VIX Varosliget Tel 225 008

ITALY
C Epis Etas-Kompass, SpA, Via Mantegna 6, 20154 Milan Tel 347 051

JAPAN
Mr Tomoyuki Inatsuki Trade Media-IBPA, R 516 Roppongi Uni House 4-3-11 Roppongi Minato-KU, Tokyo 106, Japan

USA

New York
Mr Jack N Vieira Advertisement Sales Manager IPC Business Press, 205 East 42nd Street New York, New York 10017 (212) 889-0700

Mr Raymond V Barnes IPC Business Press 205 East 42nd Street New York, New York 10017 (212) 889-0700

Chicago
Mr Jack Farley, The Farley Company Suite 1548 35 East Wacker Drive, Chicago, Illinois 60601 (312) 346-3074

Cleveland
Mr Jack Mentel, The Farley Company Suite 605, Hanna Building, Cleveland, Ohio 44115 (216) 621-1919

Florida
Mr. Ray Rickles, Ray Rickles & Company, P.O Box 2008 Miami, Florida 33140 (305) 532-7301

Atlanta
Mr Frederic A Bauer, Ray Rickles & Company 3116 Maple Drive N.E. Atlanta Georgia 30305 (404) 237-7432

Los Angeles
Mr William Marshall, Scott Marshall Sands & Latta, Inc 1830 West 8th Street, Los Angeles California 90057 (213) 382-6346

San Francisco
Mr Richard Sands, Scott Marshall Sands & Latta, Inc. 85 Post Office, San Francisco, California 94104 (415) 421-7950

Houston
Mike Loughlin IPC Business Press Ltd., 14724F Perthshire, Houston Texas 77079 Tel (713) 493 6871 Telex 421710

Computer Weekly International is sent free of charge to the following categories: Company directors, company secretaries, management services executives, civil servants responsible for computing, management/computer consultants, lecturers and teachers, data processing managers, systems analysts/O&M officers, programmers, operators, computer salesmen, field engineers.

Sponsored by 'Computer Weekly'

COMPEC EUROPE'78

CENTRE INTERNATIONAL ROGIER, BRUSSELS

May 9, 10 and 11, 1978

The third annual specialised exhibition devoted solely and exclusively to small computers, computer peripherals and systems to be staged in Brussels

COMPEC EUROPE in 1977 drew 5,300 visitors from the cream of the computer world. They came from as far away as the USA, Russia, Japan, Finland, Italy, Hungary and Poland – as well as from the great industrial areas of Germany, Holland, Belgium, France and the United Kingdom.

COMPEC EUROPE is sponsored by the leading United Kingdom publications "Computer Weekly" and "Data Processing", and is organised for them by Iliffe Promotions. All are members of IPC Business Press at Dorset House, Stamford Street, London, SE1 9LU, England. Telephone: 01-261 8000. Telex: 25137 BISPRS G.

To:
Chris Timmins, Exhibition Manager,
Compec Europe, Room 821,
Dorset House,
Stamford Street, London, SE1 9LU,
England.

* I wish to exhibit at COMPEC EUROPE '78 – please send me details.

* I wish to visit COMPEC EUROPE'78 – please send me .... (number) free pre-registration tickets.

*Complete and delete as applicable.

Name

Street and Number

Town

District and Postcode

Country

Bell network threat to computer firms

ALTHOUGH primarily an instrument in the trial of strength between AT&T and IBM, the US-wide Bell Data Network planned by the telephone company is likely to have a serious impact on other computer companies.

This is the view of Gideon Gartner, analyst with New York stockbrokers Oppenheimer & Co.

The Bell Data Network, as yet unannounced although it has been described to US share analysts, is intended to provide a data communications facility which provides a ready-made alternative for much of the arduous network implementation that users now have to undergo (CW, July 27).

It would take over the role of several communications hardware products at present supplied by mainframe manufacturers and communications equipment companies.

Among these are central processor front ends, multiplexers and concentrators, remote controllers and intelligent terminals.

Facilities provided would include network control, speed conversion, error control, terminal polling, message routing and rerouting and formatting.

Some of these facilities are offered by the "value-added" carriers such as Telenet, which leases AT&T lines to provide a packet-switched service.

The sheer size of AT&T, one of the largest companies in the world, means that such a service would have a far more pervasive impact than Telenet. In addition it would include such facilities as a high-level language, allowing users to specify their communications requirements in near-English form.

While this would make it a tough competitor for IBM's Systems Network Architecture, its impact on other manufacturers which have already made a major investment in their own network architectures, would be equally serious.

Furthest along this line are Burroughs with BDLC and Digital Equipment with DECnet. Univac's Distributed Communications Architecture and Honeywell's Distributed Systems Environment are less developed.

As for IBM, it is fully committed to the concept of distributed processing, despite its traditional emphasis on systems which centralise processing power. Series 1, System 32, System 34, 5100, 3790 and the forthcoming Orbit minicomputer are all potential distributed processing products, and telephone switching equipment such as the 3750 is also an element in IBM's grand strategy, as emphasised by an in-depth briefing at the company's La Gaude, France laboratory in October.

AT&T is equally committed to winning a share of the burgeoning market for office automation and transmission services, including electronic mail and electronic funds transfer.

A subset of the proposed Bell Data Network called Transaction Network Service is already operating in some states in the US, providing a specialised funds transfer service to supermarkets.

Lecturer of Year award

Crowning two years' success in establishing Logica in Australia, Don Jones has been given the Australian Computer Society's Lecturer of the Year award for 1977. As part of the award, he is currently on a tour of Australia, lecturing on mincomputers in data communications.

Jones, managing director of Australian subsidiary Logica Pty for the first two years of its existence, will return to Logica UK after his tour. He will be succeeded as Australian managing director by Tim Cooke, previously in charge of the Nordic subsidiary (CW, February 24).

'Leave small systems market to Redifon' says Heinz Nixdorf

FAILURE of the British computer industry to capitalise on the enormous market offered by the UK Big Four clearing banks worries Heinz Nixdorf, founder and head of Nixdorf Computers.

"I think that ICL was wrong to let the Americans win the whole of that market without a fight," he says.

The foreign subsidiaries of Nixdorf are free to decide which products they will market from the Nixdorf catalogue, but Herr Nixdorf expresses himself uneasy at some of the decisions taken by the UK company.

Although Nixdorf Computer now owns Entrex, the licensor of the Redifon Seecheck key-to-disc system, which has been enhanced to include general data processing facilities as well as data entry, Herr Nixdorf sees no need for any conflict between the two companies in the UK.

"The royalties we get from Redifon are fair," he says. "In my personal view, Nixdorf UK should leave aside the 8870 and concentrate on the 8864 banking terminal system. Two hundred people is about the right number for selling banking systems," says Herr Nixdorf.

"It is unwise to make competition against one's best friend, and we should leave the small systems market to Redifon."

Nixdorf UK counters by saying that the market for terminal orientated small business systems is so large that the £4 to £5 million business done annually by Nixdorf and the £10 million or so done by Redifon is sufficiently small that there is no danger of the two companies damaging each other by competition.

As for the banking system, a concentrated marketing effort is now being built up.

Fourth Century

THE fourth NCR computer to be ordered by the National Bank of Poland has now been installed. It is an NCR Century 251 system, and this latest order brings the value of NCR computers used by the bank to about $4 million.

CII switching system to be built by CIT-Alcatel

THE large CS-40 switching computer developed by CII before the merger with Honeywell Bull is to be manufactured by CGE subsidiary CIT-Alcatel for use with the E-12 time-division telephone switch.

Five CS-40s have already been built by CII and CIT-Alcatel will build another five at its Vélizy factory next year. After that, annual production is planned to progress from 30 to 100 a year.

The first two to be built next year will interfaced to E-12 switches, and another three will be used to control crossbar switches.

Several enhancements are being made to the CS-40, which is based on the Iris 80. The 1K-bit memory chips from Intel will be replaced with 4K chips, and the drum storage will be replaced with fixed-head discs.

The decision to go ahead with the CS-40 and the E-12 for large-scale telephone exchanges gives the French a big lead over the UK. The British equipment for the same market is designated System X and consists of Mark IIBL computers from GEC, switching systems from Plessey and signalling equipment from STC. Development contracts totalling about £20 million for the three companies were placed by the UK Post Office last summer (CW, August 11).

Dataterm speeds South African school exam results

A DATATERM 3 optical mark reading system from Data Recognition has been installed by the Transvaal educational authority in South Africa to process school examination papers.

There are about 20,000 papers of this type annually from pupils taking the standard and higher grades of the Senior Certificate examinations, and these provide about 360,000 hand-written and OMR codes which will now be loaded on to magnetic tape via the Dataterm 3.

The Transvaal provincial government's dual Burroughs B6700 computers process this information within eight hours.

Another application of the OMR system will be to handle the annual 300,000 forms giving matriculation examinations marks for the 1,200 schools in the area, data sheets on the 24,000 teachers and lecturers employed by the administration, and hospital patient statistical sheets.

Data is captured at the rate of up to 60 A4-size documents a minute and this is encoded on to magnetic tape via Honeywell encoders.

The system replaces a series of Honeywell terminals connected to Honeywell 316 mini computers at provincial government headquarters which, together with the twin Burroughs machines, operated two data communication processors, 190 online terminals and nine remote job entry systems.

Privacy laws conference

A CONFERENCE on the restrictions being imposed by national privacy and security legislation on international data flow is to be staged by Online in Brussels early next year.

Laws enacted in Sweden and West Germany and legislation pending in France, Holland, Austria, Norway, Denmark and Spain are likely to impose new regulations and controls on the transmission of data abroad, bringing problems and extra costs for the user.

Among the speakers will be Christopher Dayton, EEC science and technology director; Frits Hondius, EEC directorate of legal affairs; Jan Freese, Swedish data protection board; Professor Peter Kirstein, London University; and Carl Reuterskiold, of Swift.

The conference will take place at the Europa Hotel, Brussels, on February 7-9 and is non-residential. It costs 17,500 Belgian Francs (about £280) and further details can be had from Online, Cleveland Road, Uxbridge, UB8 2DD. Tel: (89) 39262.

Belgium Denmark Poland Great Britain Italy Bulgaria Czechoslovakia Ivory Coast Algeria Australia Belgium France Germany Greece Holland Singapore South Africa Sweden Switzerland Iran Iraq Libya Turkey Spain Portugal Denmark Eire Finland Iceland

31 Countries★ worldwide use CMC British made key-to-disk equipment

Can there really still be people punching cards?

Punched cards have a long history.

More than 50 years longer than computers, in fact!

Needing an easy-to-come-by data entry medium in the 1940s EDP pioneers chose the punched card.

But who wants to be a pioneer for ever?

Whether you have two or one-hundred-and-two terminals CMC KeyProcessing is *the* input medium for you.

KeyProcessing – the complete data entry system.

first in key-to-disk

CMC

★and 53 counties nationwide.

MARKETVIEW

The Scandinavian market

HOW far can minicomputers take over the tasks of large mainframes? Can they control large databases effectively? Is the distributed processing ring network a practical alternative to the mainframe-based hierarchical network? Will the software work?

These questions have been the stuff of computer conference discussions for some time. Many speakers have expressed scepticism about the distributing processing concept, but what distributed processing advocates are predicting for the 1980s is already happening in Scandinavia. There, two of the three leading Scandinavian manufacturers, Norsk Data, and Regnecentralen, have been installing distributed processing networks for a number of years, and Norsk Data is even implementing Codasyl compatible distributed databases on networks of 16-bit word minis.

This is somewhat paradoxical, because 15 years ago the Scandinavians were Europe's leading practitioners of centralised DP. Not only were their government departments and large corporations leading Europe in centralising on a single large mainframe, but even small to medium users were clubbing together to run a large mainframe on a co-operative basis.

The reason why small Scandinavian users centralised in the early 1960s was no philosophical belief in centralised management or processing, however. It was strictly for economy reasons. It makes it all the more significant that the same economy mindedness should now be leading them away from mainframes, not only to distributed networks but to distributed databases as well. The Scandinavian manufacturers certainly feel they have something better and different to offer.

New lease of life for Datasaab

THE computer division of the Swedish Industrial group, Saab-Scania, is Datasaab, the only Scandinavian DP equipment maker that has not yet entered the communications network market. The division has been having a tough time and in order to ensure its survival the Swedish government is pumping funds in and a new company has been formed which comes into official being on January 1. To be known as Svenska Data it will be owned 50-50 by the government and Saab-Scania.

The other component of the which specialises in air traffic control and hospital systems, and also makes the Alfaskop display terminal. Heading the company is Stansaab's managing director Gunnar Wedell.

Saab-Scania also has a 51% share in the Saab-Univac marketing operation in all Scandinavian countries except Finland where it has only 26% because of a three-way split with that country's computer equipment company, Nokia.

Datasaab has been longer than most manufacturers in the terminal end of distributed processing, since it was the first company to offer an intelligent minicomputer controlled banking terminal system as far back as 1970. That was the D5 series, now marketed not only throughout Europe, but even in the US.

In the general purpose business field, Datasaab offered only the D12 office computer and D15 small business computer, whose proprietary languages and accounting packages, and lack of communications facilities, made them more suitable for the small business.

In August, however, Datasaab widened its options by announcing the D16/30. While designed partly as an upgrade for existing D15 users, the D16/30 offers also a number of features that will appeal to organisations with outlying locations.

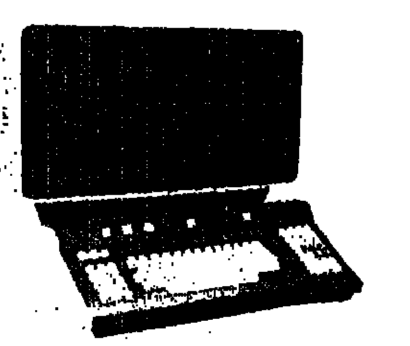
It is programmable interactively in Cobol, so that large users can simply transfer to distributed D16/30 systems smaller Cobol source programs originally written for a central mainframe. It offers also a variety of terminal emulators, allowing it to exchange data online both with other D16/30 systems, and with IBM and Univac mainframes.

The D16/30 emulators cover the IBM 2780/3780 and Univac DCT 2000 or 9000 RJE, and also include an IBM 3270 emulator, that will allow D216/30 workstations to interrogate directly a host IBM 370 computer's disc files during local transaction processing.

This feature will also allow Datasaab to upgrade users of the Stansaab Alfaskop 3270-compatible display clusters to D16/30 distributed processing systems.

Datasaab has also anticipated the computer market of the 1980s by pioneering special purpose hardware/software packages for certain types of user: notably the D15 travel agency system that can print IATA air tickets and perform the IATA accounting routines as well.

ON SHOW AT SYSTEMS '77 . . .



Whatever your field of activity or your application, the Megadata "System 700" is adaptable to your needs, and ensures full compatibility with already existing equipment, thus considerably improving the systems overall efficiency.

eurotech

DEUTSCHE EUROTECH GmbH

MANUFACTURER	Datasaab		Norsk Data			Regnecentralen		
MODEL	D15	D16/30	NORD-12	NORD-10/S	NORD-50	RC 3600	RC 6000	RC8000
MAIN MEMORY Minimum capacity (bytes) Maximum capacity (bytes) Cycle time (Nseconds)	8K 16K 980/1,200	32K 128K 550/1,200	8K 128K 1,000	64K 512K 450	128K 4M 300	16K 64K 1,200	16K 64K 1,200	96K 12M 800
DISC STORAGE (MAX) Maximum capacity (bytes)	40M	120M	80M	792M	792M	264M	264M	3,96M
TERMINALS Max number per system	16	32	16	64	64	16	4	64
SOFTWARE Operating system multiprogramming of: —Transaction processing —Multi-access program development (time sharing) —Background batch	OS/15 Yes No Yes	OS/16 Yes No Yes	Sintran III Yes Yes Yes	Sintran III Yes Yes Yes	Sintran III No No Yes	— Data entry No RJE to host	System 60 Yes No Yes	System 80 Yes Yes Yes
Languages	Logic-3	Cobol Logic-3	Cobol RPG II Fortran IV Basic Coral 66 Pascal Simula Nord-PL	Cobol RPG II Fortran IV Basic Coral 66 Pascal Simula Nord-PL	Fortran IV	Musil	Extended Basic	Extended Basic Fortran IV Algol
Database management system Codasyl compatible	No	No	Sibas Yes	Sibas Yes	Sibas Yes	No	No	CFS No
Communications node control	No	No	Nordnet	Nordnet	No	RCNET	No	No
RJE terminal emulation	No	IBM, Univac	IBM, CDC Honeywell Univac	IBM, CDC Honeywell Univac	No	IBM, ICL Honeywell Univac, Siemens	No	No
IBM 3270 terminal emulation	No	Yes	No	No	No	Yes	No	No

Table 1. The characteristics and capabilities of the various Scandinavian machines.

From bureaux to networks

WITHIN the last two years, the Danish manufacturer Regnecentralen has followed Norsk Data, both in attacking the front-end communications processor and distributed processing network markets, and in offering multi-mini configurations to perform mainframe tasks.

Unlike Norsk, RC has had a marketing network of agents and wholly owned subsidiaries throughout Europe for some time. But outside Scandinavia, this network has been selling mainly the RC 2000 high-speed paper tape reader to the OEM market, and in most countries also the RC 3600 intelligent offline data conversion systems and RJE terminals.

What is less well-known is that these products have been only the fall-out of RC's main activity, providing service bureau facilities. Its name, indeed, means The Computer Centre in Danish.

Regnecentralen was formed in 1960 with the Danish government's encouragement to provide bureau facilities to local authorities and small to medium size businesses, as an alternative to IBM 1401 and similar small computer systems whose imports might have been too heavy a drain on the balance of payments.

Its first computers were Danish Gier machines, designed in 1958-59 at Copenhagen University, though these were soon supplemented at its main Copenhagen centre by four CDC 1604s.

Its service bureau activities [illegible] ful to spread outside Denmark to neighbouring Scandinavian countries, and West Germany and Austria. RC has thus from the beginning had a small manufacturing activity for Gier computers, and their compatible successor the RC 4000 designed in 1969. Until recently these were built only to meet the requirements of its service bureaux, and also those of Eastern customers, where the Gier acquired a following in the days before the Nato embargo on US-designed computers was relaxed.

The development of RC hardware products reflects fairly closely the evolution of the Scandinavian small to medium user market from batch processing on remote service bureaux to online transaction processing on their own premises.

To process the growing volumes of paper tape reaching its service bureaux RC developed the RC 3000 paper tape-to-magnetic tape and magnetic-to-paper tape converter in the late 1960s, which was marketed for a while by Olivetti throughout Europe. In 1970, it added a Data General Nova 1200 as controller (RC had become Data General Danish agent that year) for easier character code and format conversions, and this became the first version of the RC 3600.

By 1972, many RC users required heavier terminals than paper tape transmitter receivers. For them, RC designed an RC 3600 terminal version, that could transmit paper tape to the [illegible] from the line. In 1973 the RC 3600 was offered as an RJE terminal that could exchange programs and data directly with most mainframes by emulating the RJE terminals.

Also from 1973 RC offered its bureau users the Datapoint 2200, for which it had become the Scandinavian, West German and Netherlands distributor, and from 1974 it offered software on the RC 3600, allowing it to be used as concentrator for data from the cassettes on several Datapoint 2200s. Since 1976, the RC 3600 has been available as a multi-station key-to-disc intelligent data entry system.

The final stage has been to offer full distributed transaction processing facilities with the RC 8000, a 24-bit word midicomputer.

The 8000 is fully upward compatible with the RC 4000 and Gier systems; hence the 24-bit word length. All application software developed for these systems at RC bureaux is available to RC 8000 users.

In architecture RC has followed Norsk Data's multi-processor architecture [illegible] Nord-50/Nord-10 systems [illegible] come out with something [illegible] almost identical to the DEC System-20.

The RC 8000 relies on a [illegible] word front-end processor, [illegible] case, one or more RC 3600s [illegible] all I/O. Like Nord-10 and DEC PDP-11 users, RC 3600 [illegible] users can increase the [illegible] processing power of their systems simply by plugging an RC 8000 processor and [illegible]

● Continued on page 31

RELIANCE
COMPUTER LIMITED

FOR SALE
370/148 2 meg.
370/145 512K
370/115 96K
360/20 16K
3333-001
3330-001

TO PURCHASE
IBM 370/168
370/158
370/135
3830/002
3420-007
Any any I/O equipment

9 Commonside, Sheffield S10 1GA
Telephone: 0742 669147

By Fred Lamond

Norsk success with 'mainframe' minis

THE first manufacturer to have pushed its minis into mainframe territory is Norsk Data of Norway, which has entered the UK market through the agency of Richard Norton and Associates (CW, October 20, 1977).

Norsk Data was founded 10 years ago, and its main product line has been a family of 16-bit minis, the Nord-1 and Nord-20. These were succeeded in 1973 by the Nord-10, Nord-12 and the Nord-42 OEM version.

By the end of 1977, it will have delivered over 800 computer systems, including some 360 Nord-10, and close on 200 Nord-12 and Nord-42 systems. Of these deliveries, 60% have been to the Norwegian home market; 20% to other Scandinavian countries; and the remaining 20% to Europe — including over 40 Nord-10 to CERN in Geneva.

At first sight, Nord-10 and Nord-12 specifications seem well in the mainstream of 16-bit word minicomputer design and performance. A 16-bit address length limits each individual program or program segment to a maximum length of 64K words, which is also the maximum main memory size of Nord-12 and Nord-42.

On the Nord-10, a memory mapping facility allows main memory to be expanded to 256K words, equal to the Data General Eclipse but well below the Digital Equipment PDP-11/70 2 Megabyte maximum.

But if the Nord family was just part of the minicomputer mainstream, would the Nord-10 have won the CERN order for 24 minis to control its 400 GeV super proton synchroton high-speed nuclear particle accelerator, against competition from DEC, CII and Télémécanique? And would other CERN departments have switched to the Nord-10 from DEC, Hewlett-Packard and CTL minis?

The reasons given by CERN for its choice of Nord-10 systems are revealing:

(1) The Nord-10's full-duplex CPU bus had five times the throughput of the DEC PDP-11/40 Unibus.

(2) The Nord-10 bus uses a differential method that is far more impervious to line noise than that of all the competing minis, an important consideration in nuclear research environments.

(3) In 1972 when CERN was evaluating the tenders, the Nord-10 was the only competing mini to be able to demonstrate a fully working multi-access time sharing operating system, Nord-Ops.

Norsk Data was ahead of its competitors in this field, because its Nord-1 and Nord-10 minis had been extensively used by Norwegian research institutes to save money and foreign exchange.

In 1974, Norsk released the current Sintran III operating system which combines real time control and background batch multiprogramming facilities of Sintran II with Nord-Ops multi-access time sharing. Many mainframe manufacturers have found such mixed mode operating systems difficult to implement efficiently on larger and more expensive systems.

Sintran III also includes the Sibas database management system, which is not only applications independent, but conforms to full Codasyl specifications. In 1975 came the Nordnet data communications software, which allows any number of Nord-10 systems to communicate online and to pass source programs to each other automatically.

A Nordnet can include mainframes of any size, as indeed they are in the Scannet network which links all Scandinavian research institutes in the manner of EIN in the EEC.

Now that Norsk Data has also entered the British market, we must expect ICL to be added shortly to the list of mainframe manufacturers which Nord-10 minis can front-end, or with which they can communicate.

Like DEC, Norsk Data can supply "mainframe power." A Nord-50 offers the processing power of an IBM 370/158-3 or 3031 for little more than £100,000. The company has already delivered 10 Nord-50s and three of the earlier Nord-5. Users include the Norwegian nuclear research institute, and both the Norwegian and Algerian weather forecasting centres.

The architecture of the Nord-50 provides a foretaste of probable 1980s trends. It is not a classic large general-purpose mainframe, but rather a mini-supercomputer, a cheaper smaller scale version of the CDC Cyber 76 or Cray-1.

Not only does it perform its own high-speed calculations by means of a pipeline of functional processors, it works like other supercomputers as a "slave" of a front-end Nord-10 or Nord-10/S.

The Nord-50 shares part of its main memory with its Nord-10 or Nord-10/S front-end but this effectively limits the Nord-50 to not much more than 512K bytes of main memory.

Norsk Data is working on this memory bottleneck, and may announce a less restrictive front-end some time in 1978. In the meantime, it is quite prepared to offer Nord-50s as back-end high-speed processors to users of other minicomputers, though none have been ordered as yet.

Danish network

● From page 30

memory to their existing configurations.

Unlike the Nord-50, however, the RC 8000 does not depend on its front-end RC 3600 for data exchanges with disc and magnetic tape backing storage, nor for its operating system. Its effective main memory capacity is not limited by the RC 3600's 128K byte addressing capability. On the contrary, an effective 20-bit address field allows each individual program to address up to 1M words, far more than most 16-bit word midis with memory mapping facilities. Total main memory can be expanded to as much as 4M words.

Like Norsk Data, RC is implementing a data network to link all its service bureaux throughout Scandinavia, RCNET. This is designed as a packet switching network of leased lines, in which RC 3600 processors perform nodal network control and interfacing functions.

Nodal RC 3600 systems may do double duty as RJE terminals on sites where only input and output is required, but where a site requires also some local processing power, they will normally front-end an RC 8000 or an IBM 370 or other mainframe.

RC is also offering its RCNET packet switching network control software to other users planning a private packet switching network, and foresees such applications as a major marketing growth area.

Since 1976, RC has been manufacturing its own version of the RC 3600, but this remains fully compatible with the Nova 1200 systems used previously. Some 500 have been delivered since 1971, including 150 in Scandinavia, and 45 RC 8000 systems since 1976, all but five in Scandinavia.

EUROPE represents a pool of technical skills and management talent that is vital for efficient production. That is the view of Michel Faucon, director general of staff services for IBM Europe.

Speaking at IBM's Mainz plant in West Germany, Faucon and other speakers outlined the concepts involved in production and management employed by IBM in Europe.

"In Europe alone, IBM has 14 plant locations," he said, "our aim is to manufacture in Europe everything we sell. Substantial manpower is required for this and from a total of about 82,000 employees in Europe, 22,000 are engaged in manufacturing."

Of this 22,000, 2,400 are employed at Mainz, which produces 370/145s and 148s, the 3340, 3344, and 3350 disc units, and the 3348 disc pack.

The establishment of a "single worldwide product design" concept was given as an example of the company's production philosophy. Under this, a product could be designed at any one of IBM's 25 laboratories for application on a worldwide scale. Information about such projects was communicated to production plants via IBM's global teleprocessing network.

Heinz Fridrich, group director of manufacturing for IBM Europe, described the "sister plant" concept which is used to encourage internal competition. Mainz liaises regularly with the San Jose plant in California on disc drive data.

Our picture shows the assembly at Mainz of the read/write head-arm carriage for the 3350 disc drive.

Racal-Milgo's V29 Multi-Mode is the latest version of the 96 Multi-Mode for the last three years Europe's best-selling 9600 bit/s modem. Conforming to the new CCITT recommendation V29, it is a truly outstanding modem, designed for point-to-point applications and for multi-drop polled networks.

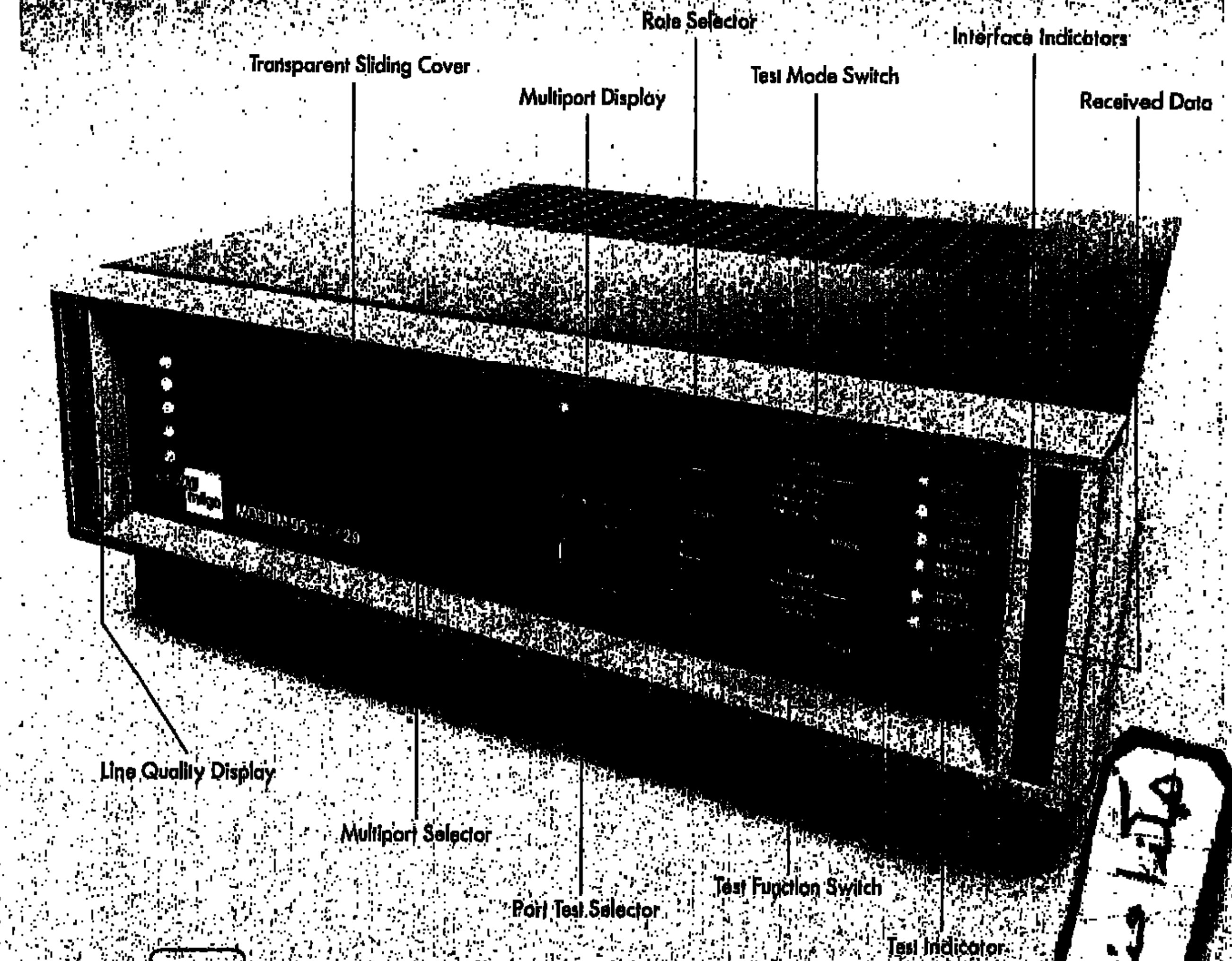
Five multi channel combinations are available, controlled by a front panel switch. There is a display of the port configuration selected. In the event of line quality deterioration, the data rate can be reduced to 7200 or 4800 bit/s.

The Modem 96 Multi-Mode/29 has a range of sophisticated diagnostic features including local and remote control of line and DTE loop back functions, a built in test pattern generator and error detector, a receive level indicator, a line quality meter and six interface status indicators.

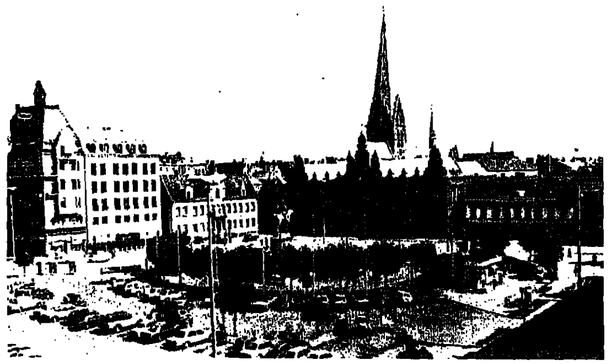
Contact Racal-Milgo now for full details of this outstanding Modem.

Racal-Milgo Limited
Bennet Road
Reading
Berkshire
England RG2 0SS
Telephone: Reading (0734) 85282
Telex: 847667

Three years ahead of its time
-The V29 Modem 96 Multi-Mode



RACAL milgo on line around the world



Malmo accent on 'friendly data processing'

BETWEEN 1965 and 1975 the city of Malmo in Sweden developed its data processing in the traditional way, upgrading from central mainframe to central mainframe.

But in 1975, the city felt that central processing would not give the many varied users effective and what is called "friendly data processing" at a reasonable cost. It also worked out that the applications it had planned would need a system which could handle 130 terminal transactions a second.

It also found that an IBM 370/148 handling 10 transactions a second would cost five million Kronor (£670,000) compared with a mini handling four transactions a second and costing 200,000 Kronor (£23,000). The number of 370/148s needed to handle 130 transactions would cost 10 times as much as the 32 minicomputers needed.

These simple comparisons, plus the fact that by 1975 manufacturers were developing database software, Cobol compilers and large storage capacity for minis, led Malmo to move to distributed processing.

So far it has installed 14 Data General minicomputers which support 80 terminals and handle applications ranging from maintaining waiting lists for old people's homes to billing harbour charges at the city's port.

IBM role in brave new Afghanistan

Ian Hugo reports from Kabul

IF you receive a stock of two tons of assorted door handles and sell 100, how many have you left and what is their value? This is one of the problems being tackled by the sole commercial computer installation in Afghanistan.

The IBM 360/30, 32K memory, with four tape drives, card reader and printer was bought five years ago by a consortium of airlines, banks and hotels and was given strong IBM support to launch a brave new Afghanistan.

The effort has given IBM 100 per cent of the market, for the other machine in the country is an 1130. This was a gift to the Met office from the World Meteorological Organisation.

To understand why there are not numerous 360s as a reward for this initiative, you have to understand Afghanistan, as IBM has learnt from hard experience.

Afghanistan has an estimated population of 17 million — estimated because there has never been a population census. In a couple of years, with the help of the UN, there may be one.

In the neighbouring Hindu Kush mountains, in chaikhana (tea shops) cowering below two ancient 200ft high Buddhas, you can buy floor space overnight next to a wood store, and as much tea as you can drink, for 7p — hardly the place you would expect IBM to look for new markets.

But with all the basic government data to collect and some significant industry (banking and textiles), the opportunity seemed to be there.

The problems started with the name. Proudly calling itself IBM, the installation quickly found itself known as ABM, which was presumed to mean Afghan Business Machines.

The trouble was that in Farsi, one of two local languages, the characters for A and I, as popularly written, are interchangeable. To avoid further embarrassment, the name was changed to Afghan Computer Corporation.

I spoke to Mr Vaz, an Indian, over the inevitable pot of tea. Was he the chief systems analyst, I inquired? No, he smiled, just the only systems analyst.

He explained that the stock control problem arose because import quotas and taxes are concerned primarily with weight, so that conversion to unit value was difficult.

This is one reason it has been impossible to produce figures for the import/export balance of the country; this, plus long borders with Iran and the Soviet Union and just two frontier posts. In turn, this complicates an attempt at a census, since an important temporary export is people.

We were joined by Mr Chopra, the IBM maintenance engineer, also an Indian. He explained that the installation tended to look to India for its trained staff but that the programmers and operators were Afghanis.

How was the electricity supply, I suggested tentatively? At this, the picture brightened. It was very good, he said, and also the telephone system. Both had been designed and installed by Siemens.

The real problems, he said, were of resistance to change (now where have I heard that before?)

In five years of operations, the installation has achieved a usage of only 100 hours per month, all statistical, accounting and inventory work.

This work posed real problems because quantities and values that started off vague tended to get vaguer as they progressed through the systems.

Hard figures, if you were foolish enough to attempt them could so easily rebound on your own neck; everybody had to make a living somehow. So there were no simple applications in practice.

What of the future? Well, there was a lot more statistical and accounting work to be done, if people could be persuaded to produce figures.

What about government statistical work? Well, they were doing some for the Ministry of Education but otherwise . . . a polite shrug of the shoulders.

Optimistically, Mr Chopra suggested that with government support there could be "a great leap forward" and Mr Vaz enthusiastically concurred. Both have worked for over two years at the installation and have obviously retained their faith in its ultimate success.

Meanwhile, IBM has not given up either. The former educational manager for IBM India, Mr N. V. Balasubra, has moved in as resident IBM manager at the installation and has started giving PL/I courses at the Engineering Faculty of Kabul University.

The Engineering Faculty was chosen because the language of instruction is English, rather than Farsi, Pushtu, French or Russian — languages used variously by other faculties. The Dean of Engineering was so pleased with the course that he has made them a "compulsory choice." Soon, too, the Installation hopes to have a System 34 and perhaps one of the banks will get its own machine.

French govt earmarks £73.5m for DP sector

EMPHASISING the commitment of the French government to the national computer industry, the Industry Ministry has announced that 82% of its budget for 1978 will be devoted to various aspects of computing.

The sum proposed is 630.8 million Francs (£73.5 million). Of this, 60% (383 million Francs) is set aside for CII-Honeywell Bull, and 20% (118 million Francs) for keeping the former CC factory at Toulouse in business.

The remaining 20% is allocated to development of the component industry, peri-informatic sector growth contracts and promotion of the use of computing.

The lion's share of this, 50 million francs, goes to development of very large scale integrated circuitry. The amount allocated by the French is about a quarter of what the Japanese government is investing in development of VLSI.

Growth contracts already agreed with Sintra-Transac, Logabax, SEMS, Pyral, G3S, Intertechnique, IER and shortly, Benson, will account for 38 million Francs.

Promotion of the use of computing is in the hands of a body called the Technical Computing Centre. It is similar to the UK's National Computing Centre and will get 23 million Francs, £2.7 million. By contrast, the NCC is to get £1.7 million over three years from the UK government.

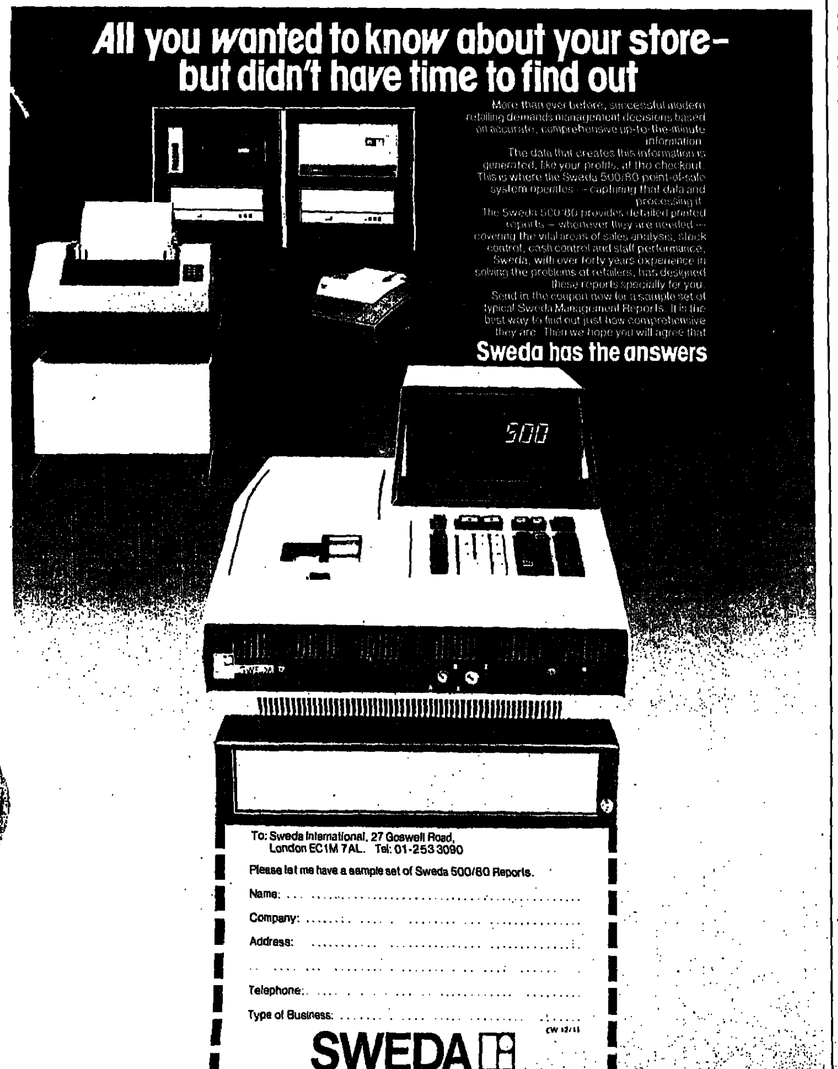
South Korean order for ITT

THE Belgian-designed ITT Metaconta 10C telephone switching system, which includes reed relays similar to the UK TXE-4 system and is controlled by a specially-designed ITT 1602 stored program control computer, has won a major victory in South Korea against competing systems from GTE and AT&T of the US, L. M. Ericsson of Sweden, Siemens of West Germany and Fujitsu and Nippon Electric from Japan.

The South Korean contract is worth "well over $100 million," and involves the establishment of manufacturing facilities for the equipment on behalf of the State-owned Korea Telecommunications Company.

But the first systems to be installed will be manufactured by ITT's Belgian Bell Telephone Manufacturing Company subsidiary.

All you wanted to know about your store— but didn't have time to find out



More than ever before, successful modern retailing demands management decisions based on accurate, comprehensive up-to-the-minute information.

The data that creates this information is generated, like your profits, at the checkout. This is where the Sweda 500/80 point-of-sale system operates — capturing that data and processing it.

The Sweda 500/80 provides detailed printed reports — whenever they are needed — covering the vital areas of sales analysis, stock control, cash control and staff performance. Sweda, with over forty years experience in solving the problems of retailers, has designed these reports specially for you.

Send in the coupon now for a sample set of typical Sweda Management Reports. It's the best way to find out just how comprehensive they are. Then we hope you will agree that

Sweda has the answers

To: Sweda International, 27 Goswell Road, London EC1M 7AL. Tel: 01-253 3090

Please let me have a sample set of Sweda 500/80 Reports.

Name: .....

Company: .....

Address: .....

Telephone: .....

Type of Business: .....

CW 17/11

SWEDA

They all talk the same language.

PECHINEY UGINE KUHLMANN

RICARD ANISETTE LIQUEUR

Rodeo

M MIGROS

British airways

SKF

Lloyds Bank

MOTOROLA Semiconductors

Shell

GAZ DE FRANCE

ELECTRICITE DE FRANCE

PEUGEOT

SNECMA

MARKIV

Whatever their business, wherever they are, they all talk the same language. They're members of the world's largest software product user group — 1200 leading installations on every continent, who have chosen Informatics MARK IV Systems.

60 to 90% savings. MARK IV is today's leading software implementation system, because it gives management the information it needs, when it needs it. At 60 to 90% savings in time and cost compared to conventional programming methods. That's been proved during a decade of cost-effective use.

Over the years, MARK IV has been continuously updated, with over 1500 improvements and 19 major releases. Today, it's by far the most comprehensive and versatile software product available, with transparent interfaces and on-line query facilities to the DBMS in widest use.

0-70 in 15 years. MARK IV Systems are developed and maintained by Informatics, the world's largest independent supplier of proprietary software products — and one of the fastest-growing. In just 15 years Informatics have expanded from a small professional service company into a $ 70 million global operation. Informatics now offer over 20 software products as well as a wide range of professional and data services. We keep adding to the list.

Wide product range. For example, we've introduced MONITOR IV™, a family of advanced teleprocessing monitors, including INTERCOMM™, BETACOMM™ and MINICOMM™. SHRINK,® the data encryption system, for data transmission and the ultimate in data security and storage optimisation. SERIES IV™, today's most flexible distributed processing software system for data entry and validation. ACCOUNTING IV® general ledger, accounts receivable, accounts payable, the easy-to-install, comprehensive and expandable, financial accounting system.

Your DP operation is results-oriented. Informatics products are, too. Which is why it will be worth your while to see us about your software needs, and the Informatics products that suit them best. You'll find we talk the same language.

Please send me documentation on: CW
☐ MARK IV Systems ☐ Other Informatics software products. (Please specify).

Name

Title

Company

Address

Tel.

Computer Operating system

INFORMATICS (U.K.) LTD
Ferrari House, College Road
Harrow, Middx HA1 1BD/UK.
Tel: 863-0066 Telex: 8813495

informatics

How Japan plans for an information society

The Japanese economic challenge has made a major impact on the Western world. At Datafair 77 in London last month Kaoru Ando (pictured right) outlined Japan's plans to build an information society whose performance may again be a major factor in the world economy. NIGEL LAURIE, a communications consultant with a special interest in computing, discussed with Ando how Japan is preparing today for the demands and opportunities of tomorrow.

KAORU ANDO holds clear views on the vital role of the DP industry. It is "socially desirable" in itself, it consumes few resources and does not pollute. But its chief benefits lie outside itself, in the gains its applications and techologies will bring to other sectors.

For the economic future, he believes, belongs not to the capital intensive economies but to the knowledge intensive ones.

Already, Japan's capital intensive industries are under attack by competitors from the developing world. It is only a matter of time before developing countries acquire capital intensive facilities which, with low labour costs, will pose a major threat. To protect its position in world markets, Japan must, he says, develop a "knowledge based society" of knowledge intensive industries.

Examples include education, R & D, printing and publishing, broadcasting, advertising, information processing, professional services and communication. These sell high added value goods and services and added value is recognised as the key to future wealth.

To achieve this, Japan has plans to develop into an information society exploiting information processing and communication technologies to the full.

Moreover, while national plans are never easy to carry through, Japan has several factors in its favour. A labour shortage is foreseen. There is what Ando calls the Japanese "drive to improve" coupled with the consensus approach to decision making. This means the run-up to a decision may be lengthy but its implementation will be swift and assured.

In public life people understand the need for such a plan. Some 75 members of the Parliament take an active interest in the development of the information processing industry and form a group which advises the government. They recognise that DP is a "key national industry for the future" and see the link between its development and the development of the whole economy into an information society.

For instance, Ando notes, LSI changed the watch and camera industry. But now "the LSI days are over" and under development is a "super LSI which will give real help to the electromechanical industry."

Nonetheless, to make a national strategy work demands the right climate and a public which understands it and supports it. Education and communication are very necessary. For "the public is near-sighted" and the skills shortage could be critical. By 1985, for instance, Japan will need 500,000 professionals in DP and other professions with a basic grasp of how DP can help their jobs. Without action, a shortfall of 380,000 would occur.

So how does Japan go about creating the right climate and educating tomorrow's users?

The DP industry and profession plays an important role. It defines its social responsibility in education terms. Giving donations to projects unrelated to DP may be worthy but, says Ando, it is "just not responding actually to social needs" of the kind the DP industry is equipped to meet.

The DP industry responds to social needs through education. It acknowledges a need to educate the whole community in DP. Indeed "profitability and social responsibility are two wheels on which business must be riding." Business in future must respond to social needs as well as to profit considerations if its purpose is to be understood by the public. Initiatives do come from the profession of industry but there is no co-ordinating group. "The atmosphere creates things."

Here are some elements in the ways Japan educates tomorrow's users:

To build public awareness there is a national Information Week. Instituted by the government in 1972, this occurs in the first week of October each year. Conferences are held in major centres throughout Japan and are open to the public. Overseas speakers attend, films are shown and equipment is demonstrated. The public is able to use and become familiar with computers supplied by manufacturers.

Each year the conferences have a theme such as "machines and human beings" and "computers and society." These distributed conferences keep the computing idea before the people and are part of a long-term education and communication plan.

Formal public education is also offered. The quasi-government broadcasting body NHK runs a basic programming course on its educational TV channel. By now it is "very well known" and anyone can take the course. "There's no need to enroll—just switch on and buy a low cost text issued by NHK."

The school system trains schoolchildren in DP by linking computer education to applications and the subject interests of pupils. There are three types of course: DP in mathematics; DP in managerial information processing for commercial students, and scientific information processing for technical students.

Educating the public is not only vital but time consuming, "and it requires much advanced investment." However, "public interest is growing" though Ando would like to see more public discussion in the media. Now, he says, "we have to teach the teachers."

One body which does so is the Fujitsu Institute of Computer Science which he founded over a decade ago. The Institute is a professional training school open to the public and intended to be "a central powerhouse." It now turns out 400 to 500 "graduates" each year who include high school teachers, company employees and union leaders. As well as teaching, the Institute develops materials for use in courses elswhere.

To complement the Institute, Ando would like to see a post-graduate institution information science. Drawing graduates from all discip... could be an interdisci... high grade centre. This ... produce a body of h... qualified DP specialists to meet the critical future d...

In Honolulu the Japan-American Instutute of Manag... Science provides "a pipe b... en Japan and the USA" f... exchange of ideas. Ame... there study the Japanese w... doing business and Ja... study the American w... managing. "A dream" at ... stage is "a counterpa... Europe" to encourage ... two-way flow of ideas.

Will the Japanese succ...? At Datafair, Ando called ... information society plan ... version of the Apollo p... and candidly confessed th... really don't know wha... information society is ... all hope it will be a gre... benefit to society."

How the human bein... respond to change is diffic... predict. But Japan's approa... he expounded it, has a c... assurance and a highly pra... tic outlook. Change, for e... ance, is managed with ... care. Experiments and long ... tests of six to 12 months ... widespread use of ... message switching system ... transactions between ... banks. "We always ... these things very systema... through many experiments ... go very slowly."

And if redundancies ... Ando insists ... human beings ... create something ... people to do ...

KAORU ANDO is ... distinguished leader on the Japanese computing scene.

Born in Tokyo in 1914 he reflected its internation... outlook by studying econometrics at the University of Indiana. In the following ... he joined IBM, passing through the IBM Sales School with ... Watson jnr. Then he worked ... setting up IBM in Japan where he held the posts of director ... education, personnel, ... marketing as well as manag... director.

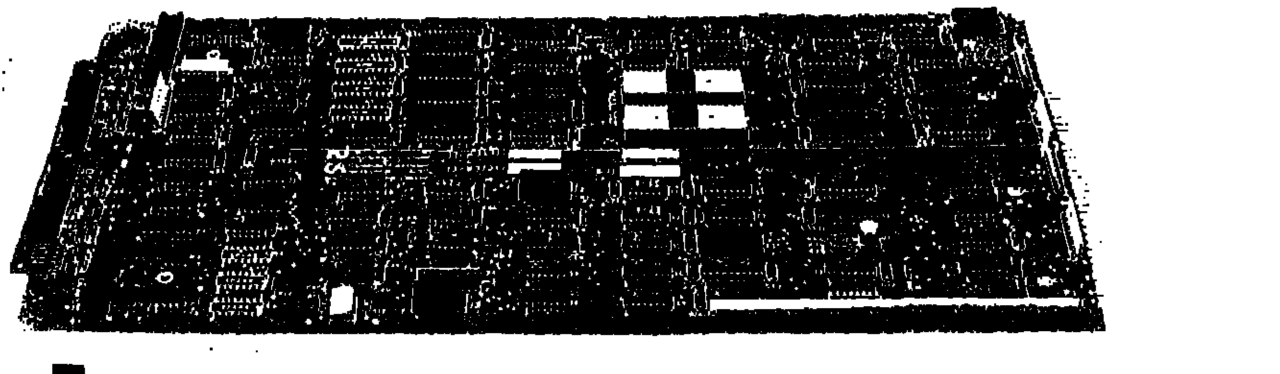
After 29 years with the company he left IBM in 19... and, at government reques... helped build up Japan's computing industry. He was appointed managing director ... Fujitsu in 1970 and is ... executive advisor. He is ... president of the Fujitsu Institute of Computer Science, a trus... of IFIP and the Japanese representative.

Ando's many other ... include director of ... Information Processing Soc... of Japan, member of ... Advisory Committee ... Computer Education of ... Japanese Ministry ... Education, and member of ... Ministry of Labour Advi... Committee on Employ... Promotion for the Physic... Handicapped.

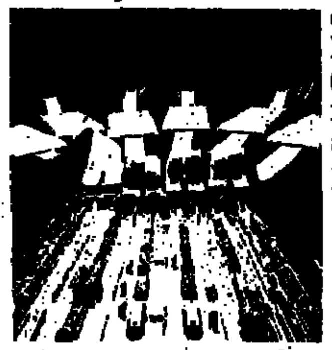
Ando's view of comp... reflects the convergence ... technologies. "Basically ... are three C's, he says, "co... technology, communica... technology and compu... technology". They should ... merged, he believes, to form ... core of the DP industry's ... development.

Fujitsu, the company ... advises, is, he notes, a ... company.

A mini computer at microcomputer prices.

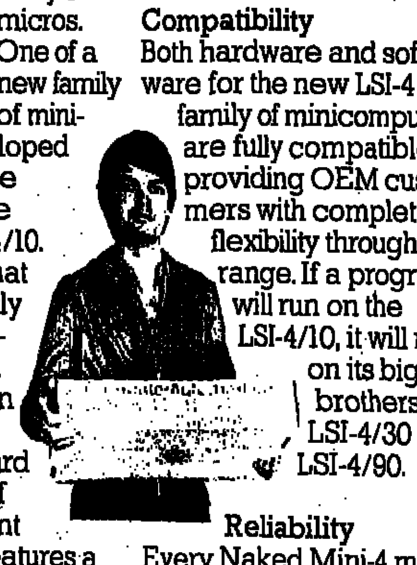


Another Naked Mini breakthrough from ComputerAutomation. Performance up again. Price down again. A powerful 16-bit minicomputer on a half-card (7½in x 15in), but at a lower price than many 8-bit micros. One of a new family of mini-computers, developed specifically for the OEM market. The Naked Mini LSI-4/10. So competitive that if you are currently buying microprocessor chips and building your own computers, you may now find it hard to justify the cost of your development effort. NM-4/10 features a high speed processor with a powerful instruction set, up to 4K words of integral memory and four I/O channels – a complete computer on ONE board.



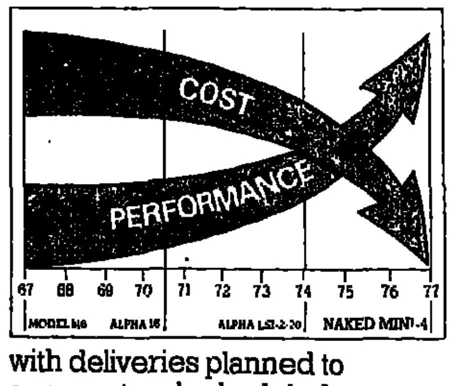
Integral I/O
The four on-board I/O channels are typical of the 'OEM features'. Used with ComputerAutomation's unique PicoProcessor-controlled intelligent cables, interfacing costs can be cut by up to 50%.

Compatibility
Both hardware and software for the new LSI-4 family of minicomputers are fully compatible, providing OEM customers with complete flexibility through the range. If a program will run on the LSI-4/10, it will run on its bigger brothers LSI-4/30 and LSI-4/90.



Reliability
Every Naked Mini-4 minicomputer carries a full 12-month warranty. That's how confident we are of their reliability. It's an assurance you can build into your products.

Fast delivery
An average of 30 days (yes, days) from date of order,



with deliveries planned to a guaranteed schedule for major OEM customers. The combination of unbeatable price/performance, compact size and a company totally dedicated to supplying OEM computers make the NM-4 ideal for YOUR application.

ComputerAutomation
Naked Mini Division
The OEM Computer People.

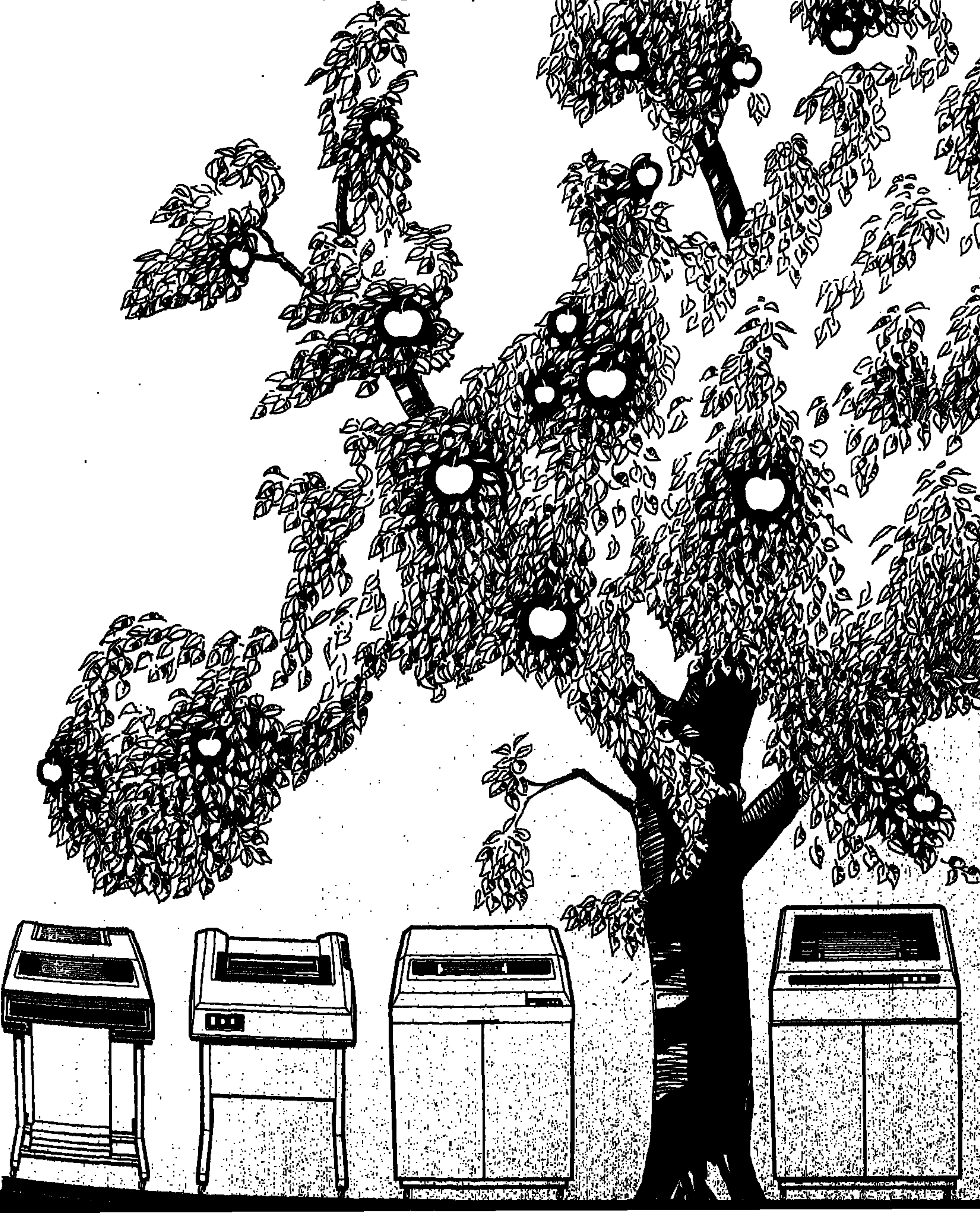
Naked Mini Division, CAI Limited (Computer Automation),
European Headquarters, Hertford House, Denham Way, Rickmansworth WD3 2XD
Hertfordshire, England. Telephone: Rickmansworth (09237) 7...

Tally grows in Europe

The fruits of the spreading Tally tree are there for anyone to take. Better technology and better performance, lower prices and less maintenance, a range of printers to match the market needs of the whole continent.

A factory in Austria and sales and service support in 16 countries.

Branches everywhere you might say.



A range of printers to satisfy all your computer output needs.
Optimised technology at each speed means optimised reliability.
Simplicity of design means round-the-clock performance – with no routine maintenance.
Tally printers plug in to almost any mini-computer or data terminal.
Tally service is direct and fast – anywhere in Europe.
Tell us your application requirement: we'll tell you which printer will meet it.

TALLY LIMITED
7 Cremyll Road
Reading RG1 8NQ
Berkshire, England
Telephone: (0734) 580141

TALLY GmbH
6 Frankfurt/Main
Kruppstrasse 138
W. Germany
Telephone: (0611) 417191

TALLY Gesmbh
Zetschegasse 17
A-1232 Vienna
Austria
Telephone: (0222) 672647

TALLY ITALIA S.r.l.
Via Ciardi I
Milano
Italy
Telephone: (02) 4045546

TALLY S.a.r.l.
40 Rue des Vignobles
78400-Chatou
France
Telephone: (01) 913 5827

Belgium
S.A.I.T. Electronics S.A.
Brussels
Telephone: (02) 3762030

Denmark
Datalog
Copenhagen
Telephone: (01) 12 48 03

Finland
Jertec Oy
Helsinki
Telephone: (90) 542 007

Greece
Doxiadis Brothers, Graphotechniki S.A.
Athens
Telephone: (01) 3226601

Holland
Tracor Europa B.V.
Amsterdam
Telephone: (020) 411865

Ireland
Creative Systems Limited
Malahide
Telephone: Malahide 45311

Norway
Norsk Marconi A.S
Oslo 6
Telephone: (02) 670486

Portugal
Equipamentos de Laboratorio, Lda.
Lisbon
Telephone: (19) 976551

Scotland
Fortronic (Fife) Limited
Dunfermline
Telephone: (0383) 823121

Spain
Unitronics S.A
Madrid
Telephone: (91) 242 52 02

Sweden
Datametrix A.B.
Olofsgatan
Telephone: (076) 051655

TALLY

ITT processor for large networks

A FURTHER addition to ITT's range of communications systems and equipment has been announced by the company's German subsidiary, Standard Elektrik Lorenz.

The new hardware addition to the line is a third communications processor, 3809, which joins the 3805 and 3807, but offers further facilities for large networks. It has a capacity of up to 512 full-duplex lines, and main memory extends to one Megabyte. Eight multiplexed channels are also offered.

The processor has a throughput of about 400,000 bytes per second, and can support peripherals through block-multiplex channels with a transfer rate of 1.5 Megabytes per second.

Peripherals offered with the 3809 include disc drives with capacity up to 60 Megabytes, tape drives, card-reader and 600 or 900 lpm printers.

A portfolio of software modules called Data Switching System is included in the announcement, running under a special Communications Operating System, COS.

Modules include Data Switch/Message Control Program to interface the network to the host computer, Communications Access Method, which takes over this function from the host mainframe, Network Manager, and File Access Method.

ITT Business Systems says that the 3805 and 3807 already introduced in the UK are likely to meet all user requirements for the foreseeable future, but it is considering a 3809 for possible introduction in the long term.

Running a DP centre

ALL aspects of running a computer centre are covered in an information service from Auerbach in the form of bimonthly supplements.

The first supplement deals with organisation and looks at planning, efficiency and communications with, and supervision of, staff.

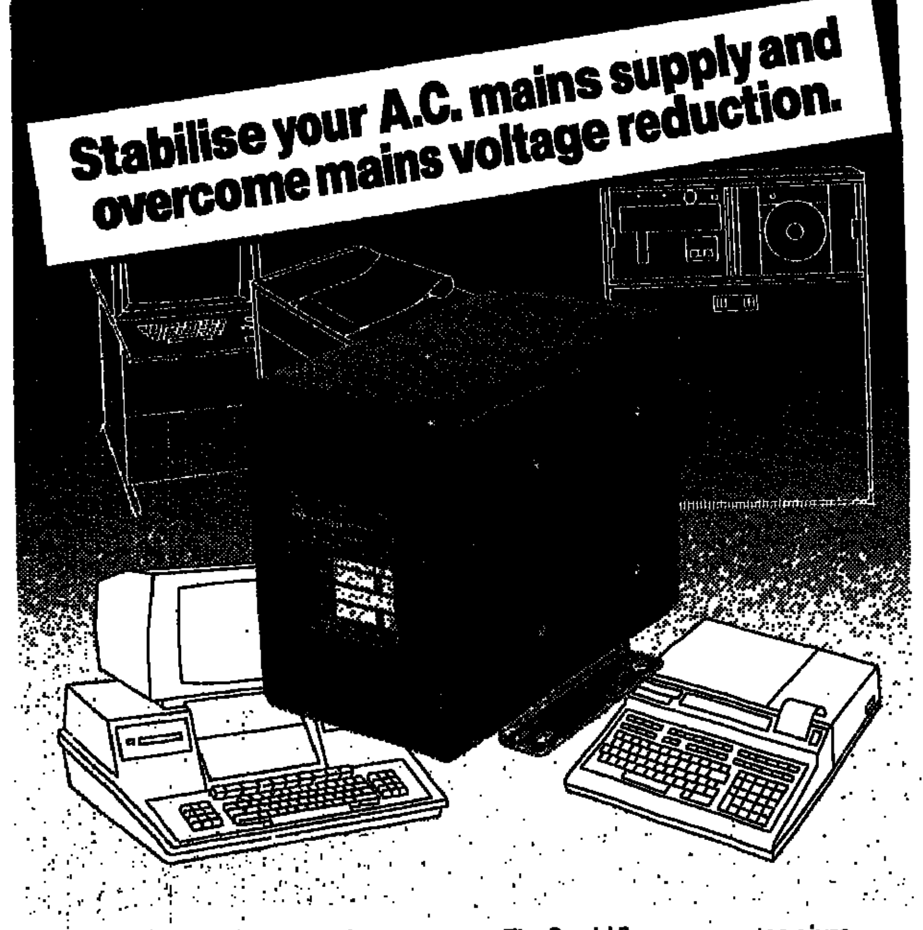
The production management supplement deals with the main aim of computer operations: to meet the needs of the organisation. Planning and scheduling work flow, input and output controls and the distribution of output are covered.

Interfaces between the end user and both the computer and the operations department are dealt with in the third supplement. The next two are related, in that one covers job accounting and justifying the operations budget while the other looks at auditing and measuring performance.

The final supplement deals with management functions ranging from designing the computer centre to supplying time sharing services.

The series of supplements is called Auerbach Data Centre Operations, and costs £120 for a year. A 30-day free trial is offered. Further details can be had from Heyden and Son, Spectrum House, Hillview Gardens, London NW4 2JQ.

URGENT ANNOUNCEMENT!



If you own, operate or rely on critical electronic equipment, drops in the mains electricity supply could cause serious problems, including loss of computer memory and errors.

Gould Advance Constant Voltage Transformers will provide a stable voltage output, within ±1%, even if the mains supply drops as low as 190V.

Models are available from 76W to 3KW. The units are easy to install.

The Gould 2 year guarantee gives you even further protection. Immediate delivery on most models.

Contact our sales office today — Gould Advance Limited
Raynham Road,
BISHOPS STORTFORD,
Herts. CM23 5PF.
Telephone 0279 55155 Telex 81510

GOULD

Are time-lags in implementation of new ideas and technology, repeated failures and differential growth and development in various countries peculiar to the computer industry? FRANK LAND, of the London School of Economics, examines the problems of what he calls technology transfer. Mr Land is chairman of the UK committee set up to help organise contributions to the Third Jerusalem Conference on Information Technology, to be held on August 6-9 next year.

Factors in the transfer of technology

Frank Land

AT the end of the recent IFIP Congress in Toronto, I took a 52-hour Greyhound bus ride to the Canadian Rocky Mountains. This gave me a chance to try to reflect on some of the massive volume of material we had received at the congress.

One particular thought kept recurring. Despite the incredible rate of technological invention, and the prospect of an even more rapid rate of progress in this direction, the computer industry revealed a series of intriguing time-lags: the lag between an invention becoming known — for example, bubble memory — and its actual incorporation in a marketable product; the even greater lag between the availability of new capabilities and the recognition and use of the capabilities in industry and commerce.

Even greater is the lag between the application of a new technology in one developed industrial country and the application of the same technology in a developing country. Even within a single country — even one industry — the rate of take-up of new ideas and technology shows enormous variation.

At the same time, once the new technologies begin to be used, they undergo the same kind of problems of introduction as those they replace.

Are the time-lags, the repeated failures, the differential growth and development rate peculiar to the computer industry, or do they apply to all technological developments?

Some organisations or countries can absorb new technologies, whereas others fail to utilise them. Overall we note an accelerated growth in technology in the 20th century, yet the progress made has been far from uniform. The accelerated pace of technological progress appears to have made the rich richer and the poor poorer.

Within the past decade people have begun to be interested in the process by which technology is transferred. A new area of studies is developing which attempts to look into the process by which technology transfer is initiated and implemented and which looks at the factors which inhibit or slow down the process, and the factors which aid or accelerate the process. Some previously accepted doctrines regarding the direction of development of technology have been challenged, for example, by Schumacher, who has demonstrated that a technology televant in one environment may be totally irrelevant in a different environment.

The systematisation of the study of technology transfer has enabled us to identify the three most important components in the transfer process:

1. The source — which has the knowledge and skill relating to the technology in question. The source may be the research and development section of a large industrial organisation, or may be a pure research establishment, or an academic institution, or an organisation which sells technology, such as a computer manufacturer or software house. Or the source may be a country which is utilising a particular technology.

2. The target — which at present lacks the knowledge or skill to exploit the technology. The target may be a production division of the company with the R&D department, or may be a different branch of a multinational company, or may be a developing country.

3. The agent — responsible for transferring the knowledge and skill from the source to the target.

If we look at the process of transfer more closely, we can begin to identify the factors which act as constraints on the transfer of the technology. Some of the most important of these factors are:

Resources constraints — lack of capital and finance, lack of labour with the required skills;

Infrastructure constraints — lack of adequate communication facilities, lack of education and training facilities;

Technical constraints — products engineered for a temperate climate may not operate efficiently in a tropical climate;

Cultural constraints — comprising attitudes, norms, and [illegible] may directly inhibit certain kinds of development or cause conflict between the agent, with one set of cultural norms, and the target, which may have a different set of norms. (Consider the problem of bribes in different countries.) These differences may operate at the level of organisations or at the level of countries. Does the relevant slowness of UK industry to adopt UK inventions, as against the US or Japan, derive from cultural constraints, resource constraints or a mixture of the two?

Economic constraints — size of the market and problems of scale;

Educational constraints — the level of literacy and numeracy. Again, this may be as significant a difference between a developed and a developing country as between two organisations within one country — one which has recruited its managerial staff with a background of higher education, perhaps from business scools, and the other which has recruited its managerial staff with different educational qualifications;

Legal constraints — such as laws relating to privacy, to pollution and to ways of doing business via company legislation;

Institutional constraints — arising from the methods of operation of the country's institution. Included in this, for example, would be the codes of practice used by the accounting profession and the extent of bureaucratic control and red tape;

Political constraints — connected with the political system in operation, and factors such as nationalism, patriotism and the extent of government control;

Language constraints — which prevent the free communication of ideas and knowledge across political boundaries and, at times, within one country.

All these constraints are in some ways interdependent. The legal and political constraints are in some sense the result of cultural patterns.

Why, for example, does a major industry appear to reject a new development which appears to the outsider to make the product of that industry cheaper and more reliable? The factors causing the rejection may be very complex, consisting of institutional, cultural and economic elements. What factors give rise to the typical management Catch-22? If it is not written off, we cannot replace it because the costs have not been recovered. If it is written off, we cannot replace it because it is now free.

Awareness of the constraints in transferring technology from source to target gives rise to the concept of "fit". The new technology must fit into the complex environment of the target. Awareness of the inhibiting factors also suggests some of the tools which may aid the process of transfer and help to overcome some of the constraints. The most important tools are:

Education and training: Education has many aspects. It can be used to reinforce existing barriers or be used to prepare for change. It is one of the principal conditioning agents affecting attitudes towards technology and change. Education is not a one once-for-all operation performed on school children, but a continuous process through life. In terms of technology transfer a technique of particular value may be post-experience and mid-career and training courses.

2. The availability of information: Information plays a critical role in technology transfer. Without information the process cannot even start.

3. External agencies: There are many agencies which foster research, economic development, and ultimately technology transfer. These agencies range from international bodies such as the World Bank, government offices providing grants or tax relief, and private or public institutions such as merchant banks and the stock exchange.

The computer industry is of particular interest in the study of technology transfer. It represents a rapidly developing technology subject to all the difficulties faced by other technologies. At the same time, it provides some of the most important tools yet developed to aid the process of technology transfer:

the computer as a learning and educational aid, via CAI and CAL;

the computer as a design aid via CAD;

computer technology providing new and better methods for communication;

the computer as a databank for the dissemination and retrieval of an almost unlimited variety of relevant information.

Nevertheless, it is now becoming clear that it is only with a better understanding of the process itself that we can effectively apply the tools the computer revolution has made available.

Jerusalem Conference

THE Third Jerusalem Conference on Information Technology, to be held in Jerusalem on August 6-9, 1978, has taken as its main theme the problems of technology transfer. The conference will cover a wide range of topics on computing applications and technology and communication systems, with a special focus on the role of computers in the transfer of technology. There will also be an international software and hardware exhibition.

Because of the international flavour of the conference, committees have been set up in a number of countries expected to make strong contributions to the event. The chairman of the UK National Committee is Frank Land, of the London School of Economics; in France, Jacques Hebenstreit of the Ecole Supérieure d'Electricité is the national chairman.

An interesting feature of the conference is a competition for high schools. Schools from the UK, Canada, Israel and the US are among those expected to enter the contest. The conference has received [illegible] of the [illegible] ship from most of [illegible] national professional [illegible] bodies, including IFIP, [illegible] and the BCS [illegible]

ROUNDUP

A summary of main news items which have appeared since the last issue of Computer Weekly International on October 13

Royal opening for Swift funds transfer network

THE Swift interbank funds transfer network was declared officially open in Brussels in October, by Prince Albert of Belgium. At the ceremony, the three approved Swift Interface Device, SID, suppliers, revealed their plans for the next generation of hardware and software.

Burroughs is to meet criticisms of the B7 SID's throughput capacity by rewriting the interface software in the MPL 2 language of the B80-800-1800 compatible range of small systems.

General Automation has no plans for a second generation at present, but is completing a portfolio of banking software which will be available to Swift and non-Swift users.

ICL intends to develop a new modular SID combining elements from both the 1500 and the 7502 terminal systems.

NCR and EC are also preparing Swift solutions. DEC is said to be working on a system to run under RSX-11. (CW, October 27.)

US MINIMAKER Microdata has completed negotiations to buy 75% of key-to-disc manufacturer CMC UK for $4 million, but has abandoned plans to buy CMC France and CMC Germany. CMC UK has subsidiaries in Sweden and Denmark and Microdata will market through distributors for the rest of Europe. (CW, October 20.)

A WORKSHOP funded by the EEC, aimed at improving the training of computer staff, is to be held in Munich on December 7-9. It is organised by the UK Institute of Personnel Management and the National Coal Board's subsidiary Computer Power, and is part of the second phase of a study into training started three years ago.

The working language of the workshop will be English, and further details can be obtained from Malcolm Campbell, Institute of Personnel Management, Central House, Upper Woburn Place, London WC1H 0HX, tel: 01-387 2844.

INTERNATIONAL data flow and the protection of personal information are now being dealt with at White House level in the US. All government departments have been asked to tell the White House of their plans to implement the Privacy Act, and a top member of the National Security Council has been given the job of finding out how US interests might be affected by trans-border data flow and by legislation controlling it. (CW, October 20.)

A CHEAPER alternative to bubble memory is now available from BASF in the form of a domain tip memory module, the DOT 48K. Word processing and microprocessor systems are seen as two big application areas. The module has a lower capacity and a longer average access time than the latest bubble memory chips, but at a cost of $20-$8 per module (40-15 millicents per bit) it is considerably cheaper. (CW, October 27.)

THE mini developed by the Swiss firm SEN Electronique of Geneva has been officially launched as the Helvet-1. It is compatible with the 16-bit Data General Nova, and with the Digital Computer Controls DCC-16 series. (CW, October 27.)

DELAYS of at least 15 months in the production of its large-scale 66/85 processor have led Honeywell to revise its plans for its large systems, which are currently under increased pressure from the IBM 3030 series. The 66/85 is likely to be replaced by a more powerful processor in 1979, but in the meantime enhancements to the existing Level 66 and 68 (Multics) processors are expected very shortly. (CW, November 3.)

EXPORTS of UK computing services received a boost from the National Computing Centre following the decisions to give extra support to the 123 members in this sector and to appoint a services industry membership manager. The latter will act as a contact point for the software products scheme, for requests from overseas for training services, and for the Interlock programming services scheme, under which contractors develop systems in the UK to the specifications of an overseas customer. (CW, November 3.)

UNDER the revised plan for restructuring the Swedish computer industry, Stansaab will effectively take over Datasaab, and the resulting company, Svenska Data, will be owned equally by Saab-Scania and the State. The managing director-elect is Gunnar Wedell, at present head of Stansaab. The plan will be put before the Swedish Parliament shortly. (CW, November 3.)

DESIGN of the new Pascal-based language for the Swedish defence procurement agency, FMV, has been sub-contracted to UK consultancy SPL by L.M. Ericsson. FMV will use the language as its standard for real time software development. In September the US Department of Defence also decided to use Pascal for its Ironman project. (CW, October 27.)

RELEASE 5 of IBM's VM/370 operating system says that VM/370 will be supported on the current models of the 3030 series (and, presumably, on future models). Fears that IBM was seeking to push users of its new large machines irrevocably towards MVS have been allayed by the new release. (CW, October 27.)

THE fourth company to join the UK National Enterprise Board's Insac consortium is Systems Designers Ltd, which has long had a close association with the government, handling in particular several projects for the Ministry of Defence. (CW, October 20.)

REPRESENTATIVES of top IBM management are scheduled to visit China very shortly. IBM has been eyeing the Chinese market for banking systems. (CW, November 3.)

THE UK government-owned Cable and Wireless Company is bidding $16.3 million for Carterfone Communications Corp of Dallas, Texas, celebrated for an anti-trust victory in the late 1960s, as a result of which equipment from non-AT&T suppliers was allowed to be attached to AT&T lines for the first time. (CW, November 3.)

A COMPUTER-BASED mine control and monitoring system developed by the UK National Coal Board was shown at the Mining Machinery Exhibition in Birmingham. The system, Minos, is based on a Digital Equipment PDP-11/34 minicomputer, and its applications fall under two headings: environmental monitoring, and control of transport of coal from the face and of other vital machinery. (CW, November 3.)

THE Wellesley, Massachusetts terminal systems manufacturer Incoterm is to be acquired by Honeywell under a complex share-swap formula. The acquisition raises interesting question in France where Incoterm products are built under long-term licence by Transac. Transac is a subsidiary of CGE, one of the largest minority shareholders in CII-Honeywell Bull. The acquisition would give CII-HB the means to make a more concerted effort in the European banking market. (CW, October 20.)

THE first database processor to be offered by a mainframe manufacturer is ICL's Cafs, Content-Addressable File Store. Designed to take over the task of database management, it consists of an array of parallel processors linked to a disc subsystem and runs as a backend to a mainframe. An interesting feature is that the hardware searches the file by content rather than address. (CW, October 27.)

COMPUTER WEEKLY'S annual charity ball raised over £1,000 for the British Computer Society's Specialist Group for the Disabled. The ball, held at London's Royal Lancaster Hote, was attended by over 600 people from the computer industry. (CW, October 20.)

MICROCOMPUTER systems are likely to make major inroads into the OEM minicomputer marketplace soon, according to a report issued by the First Boston Corporation, a New York company of investment bankers. (CW, October 20.)

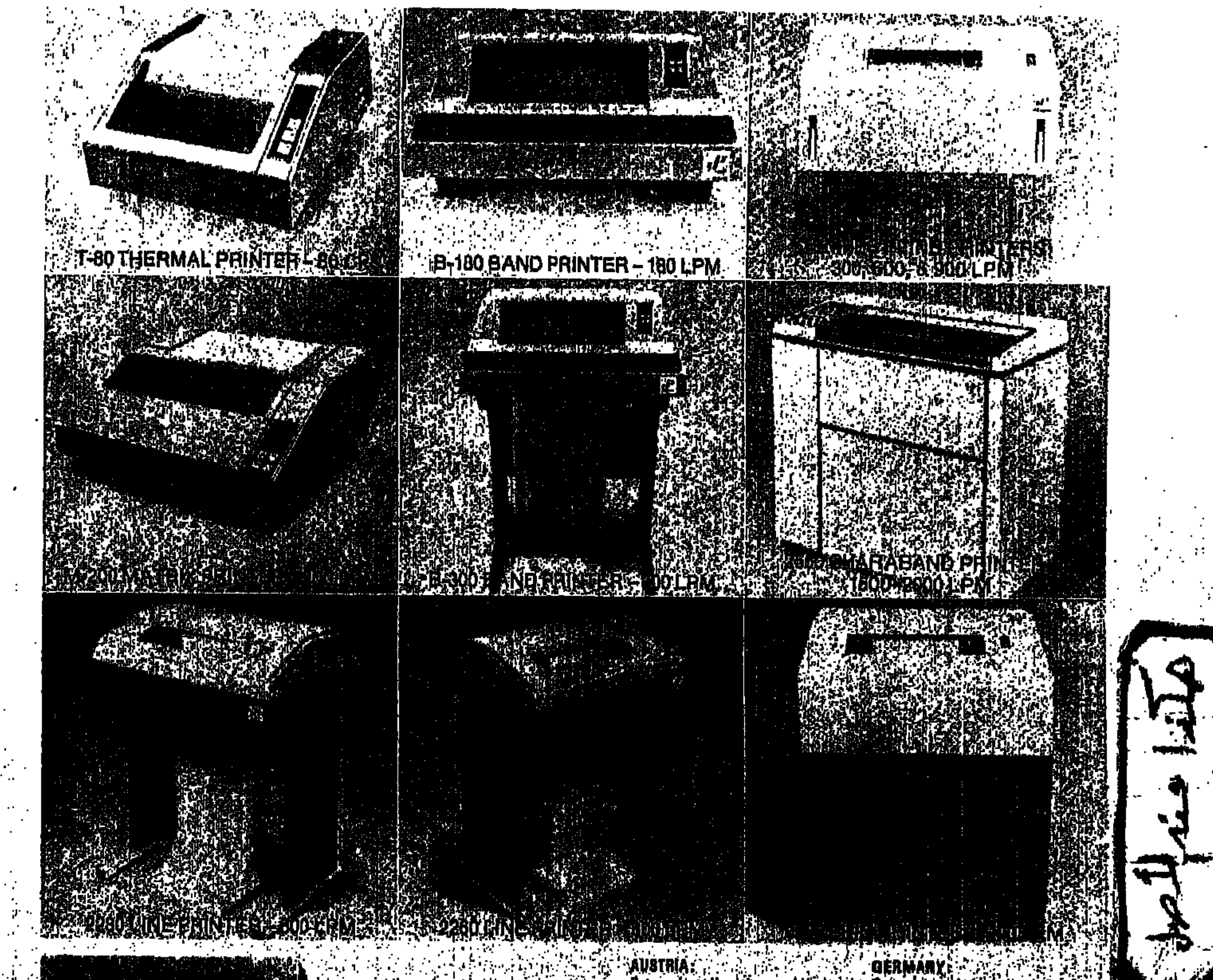
A 32-BIT mini has been introduced by Digital Equipment. Called VAX-11/780, it comes with a new operating system named OS VAX/VMS and will support all PDP-11 peripherals as well as being able to run PDP-11 programs. Volume deliveries will begin in mid-1978, although first shipments could start earlier. (CW, October 27.)

THREE new 1100/80 and two new 90/80 models have been introduced by Univac, all featuring new compact processor logic and 16K bit memory chips. New entry-level 1100/80 offers 70% of the power of the 1100/81, and better price-performance than IBM's new 3031. (CW, October 27.)

THE Zilog Z-8 single-chip microcomputer is scheduled to appear in quantity in March. The eight-bit device has an on-board memory capacity of 2K bytes of ROM and 96 bytes of RAM, with 32 I/O lines. The 16-bit Z-8000 is planned to appear next June. Its throughput capabilities and architecture will be similar to those of the PDP-11/70 mini, with a Z-80 compatible (at assembly language level) instruction set. (CW, October 20.)

A NEW subsidiary has been established in the California centre of the US semiconductor industry (known popularly as Silicon Gulch) by CAP, the UK consultancy. Known as CAP-CPP Inc and based in Palo Alto, the company will deal in CAP Microsoft products and services. (CW, November 3.)

PROBABLY THE GREATEST RANGE OF PRINTERS IN THE WORLD



UNITED KINGDOM: Dataproducts International Inc., "Sterling House", South Street, Reading, Berks. [illegible]
AUSTRIA: Dataproducts Handelsges. mbH, [illegible] A1030 Vienna. [illegible]
FRANCE: Dataproducts International Inc., [illegible]
GERMANY: Dataproducts International GmbH, [illegible] Frankfurt. [illegible]
ITALY: [illegible]
EUROPEAN MANUFACTURING: [illegible]

EUROPE'S LEADER IN TELEPRINTERS, VIDEO TERMINALS, PAPER TAPE PUNCHES AND DATA PREPARATION EQUIPMENT.

Data Dynamics

Data Dynamics, Data House, Springfield Road, Hayes, Middlesex UB4 0BR. Telephone 01-848 9781 Telex 935429

COMPUTER WEEKLY INTERNATIONAL

Taking the heat out of the ops room

ALTHOUGH not confined to heat transfer in computers, much of the discussion at the recent National Science Foundation-sponsored research workshop in Atlanta, Georgia on directions of heat transfer in electronic equipment centred on computer applications.

Of the 38 who took part in three days of presentations and discussion, nearly half were from computer manufacturers — six from IBM alone.

Not surprisingly, the IBM "air conditioning within frame" concept was described as typifying the direction in which electronic circuit board cooling is moving.

Here, the primary heat removal medium that passes over the components themselves is air, but a flat compact air-to-water heat exchanger is interposed in the air stream between each row of boards so that all receive cooling air at the same initial temperature.

Despite the emergence of high duty cooling systems using novelties such as spray cooling, integral heat pipes and inert organic liquids, air was considered as remaining the primary coolant for 85% of computer applications.

Several ways in which more effective air cooling has been obtained included splitting the circuit board at its high thermally conducting core and passing air through the duct formed; clamping both board edges directly to water-cooled flat-packs; using an alumina or, better, a beryllia heat exchanger attached directly to the base ceramic of LSI wafers.

However, with the use of air are associated problems of noise and effective air moving. All coolant flows, whether air or water, give rise to fouling problems; also, with all systems, the problem of finding accurate mathematical models and convenient computer programs for solving them remains. So do the problems of determining accurate values of contact thermal resistance and bulk material thermal conductivity.

Recommendations on areas for further research work included: investigation of the dependence, if any, of junction-to-base thermal resistance on the external heat removal mode; development of an air moving device delivering 25 to 30 litres per second at 60-80 mm water gauge, driven at 4,000 revolutions per minute by a 150 watt motor; aspects, such as fouling and heat transfer augmentation, of the final heat exchanger; optimisation and systematisation of existing air cooling technology at component level; flow characteristics and/or boiling characteristics at component level in liquid-filled sealed modules; cataloguing and describing available programs.

The proceedings are to be published in the spring and will be available from Dr Win Aung, National Science Foundation, 1,800 G Street, Washington, DC20550, USA.

Philips' software aids for US early 1978

DATA entry and preprocessing software already being sold on the Continent by Philips will be made available in the UK and the US early next year through its original developer, Four Phase Systems.

The software adds capabilities to Four Phase Systems' IV/70 data entry system, both in its local processing and mainframe communications modes.

New features include sequential access to index sequential files, increased flexibility in local printing and spooling of print files, extension of the IV/70 programming language to include all common arithmetic functions, and the ability to execute batch functions concurrently from more than one terminal.

The IV/70 is sold by Philips in Europe as the X1150 series, and the software is known there as Data X1150 Version 4.

Setback for Fujitsu

THE big breakthrough sought by Fujitsu in the Australian market may be a little delayed. The company was thought to be well ahead of the field for the prestige Commonwealth Bureau of Census and Statistics contract with a large-scale M190 mainframe to replace its CDC 6600.

But Canberra reports that the CBCS is rethinking its whole strategy and may decide to put out another tender on the basis of several smaller systems. Fujitsu is likely to remain in the bidding.

IBM price cuts threat to Japanese expansion

AN American report on the Japanese computer industry following the launch of the IBM 3030 series questions whether the ambitious goals set for the industry by the Ministry of International Trade and Industry can now be met.

The report, by Mort Shepetin, of New York stockbrokers Dean Whitter and Co, says that the 3033 announcement was a shock to the Japanese, in that their programme was geared to matching the advanced new hardware expected in IBM's abandoned FS project.

Instead, the 3033 included no radical new hardware; it concentrated on improving the efficiency and extending the system software, an area in which the Japanese are weakest.

Shepetin also says IBM's aggressive pricing faced the Japanese with a major headache, since their computer operations are already only marginally profitable.

Shepetin expects that IBM's price cutting policy for all 370 equipment sold in Japan will hit Japanese manufacturers' share of their home market. At present this is running at 57%, the highest it has ever been.

Government orders usually go to Japanese firms but Shepetin believes that any loss of part of the private sector market will make it difficult for them to expand their drive into foreign markets.

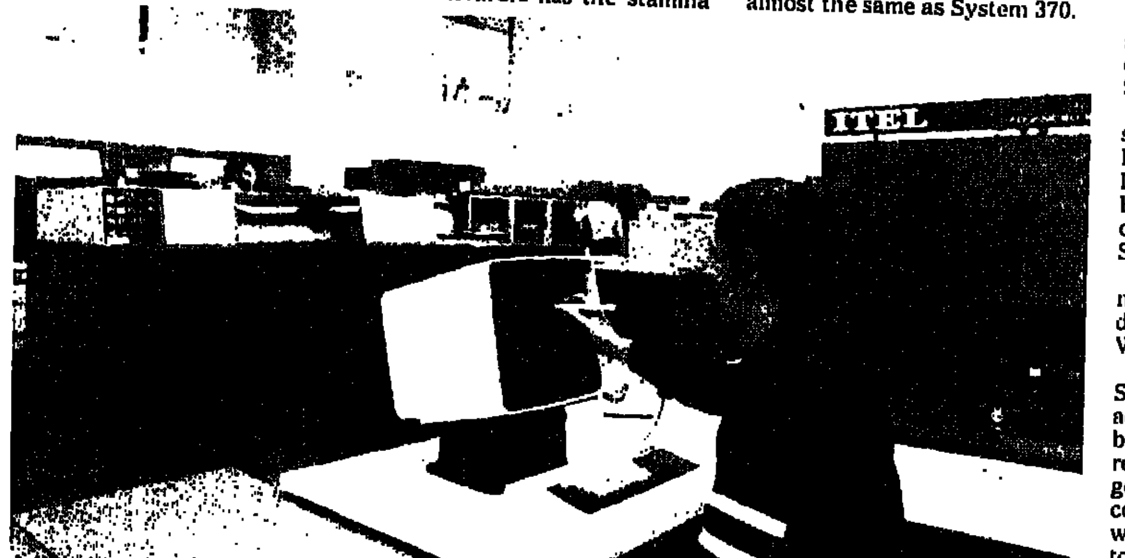
He says that MITI is disappointed in the results of the pairings of Fujitsu and Hitachi, NEC and Toshiba and Mitsubishi and Oki, which was imposed on these groups by the government. Fujitsu and Hitachi in particular are still competing head-to-head in the private sector.

Equally they compete internationally, Fujitsu through Amdahl and Hitachi through Itel.

The Japanese government is therefore now considering removing all guidance and leaving market forces to decide which one or two of the six manufacturers has the stamina to survive, says Shepetin.

He also believes that the Japanese objective of exporting 15% of output by the mid-1980s is now not on and that 1990 is the soonest it could be achieved.

The Japanese manufacturers are making brave noises about the 3030 series machines, reports the Japan Economic Journal. They are playing up the fact that the machine architecture is almost the same as System 370.



The first IBM compatible Itel Advanced System to go live in Europe (pictured here) has been running since September 14 at Telsys, the service bureau subsidiary of the French banking organisation, Société Générale. Telsys chose the AS/5 as a less expensive but equally powerful alternative to an IBM 370/158. It shares the Telsys computer suite with two older IBM systems, an IBM 370/145 and a 370/155, and handles teleprocessing for Telsys customers all over France.

Meanwhile, Itel in the US has set up a centre to develop new products, including bigger IBM compatible processors. The centre is at Palo Alto in the "Silicon Valley" area just south of San Francisco where Itel has its headquarters.

The biggest Itel computer at the moment is the AS/6. This is built in Japan for Itel by Hitachi and offered as a more powerful alternative to the 3032 (CW, October 13).

According to Itel, the other new IBM machine, the 3031, still works out about 20% more expensive than the AS/5, even though it is much cheaper replacement for the 370/158. Next year AS/5 users will be able to field upgrade their machines to the AS/5 7031 which will have the 3031 hardware features not found on the 370/158, including a 32K byte cache buffer.

Itel has installed 34 AS systems to date worldwide, including three in Europe, and plans to install 200 machines in 1978, including 50 in Europe. Itel expects ten of these to be AS/6s and the rest to be AS/5s and AS/4s. The AS/4 is a more powerful alternative to the 370/148.

ICL replaces IBM system in Montreal

A CANADIAN local authority has opted for an ICL 2903 to replace its IBM system 3/10 rather than a comparable IBM system.

The authority, Westmount, a suburb of Montreal, received a bid from IBM in the form of a System 3/12. This was withdrawn and replaced by a System-34.

The authority opted for the ICL system because of "its sophistication of systems design, its facility for enhancement, high storage capacity and the data communications and direct data entry features."

The machine will run payroll, taxation, electricity billing, stock control and general accounting systems. In addition, it will be linked to public cashiers' counters and rates offices, via video terminals, for customer queries.

Some 160 RPG II and 50 Direct Data Entry programs were converted to run on the new system in two months with the help of an ICL team.

Videodata cable system has range of several miles

A WIDE-BAND coaxial cable data distribution system with ancillary interfaces for a broad spectrum of data, voice and video attachments is being marketed exclusively in Europe by Ferranti. Developed by Interactive Systems Inc of the US and called Videodata, the system offers a bandwidth range from five to 300 MHz and modems with rates from 50 bits to 300K-bits per second.

Designed primarily for in-plant use, the cable system has a range of several miles, costs about £1 a foot with ancillary interfaces and control modules, and supports frequency and time division multiplexing either separately or both modes in the same cable.

PT7 The other terminal for IBM and ICL mainframes FERRANTI

Green light for Svenska Data

THE Swedish government has made "substantial concessions" in a bid to persuade Stansaab to join Datasaab in its proposed national DP company, Svenska Data.

Assuming that a Bill tabled in the Swedish parliament on October 28 receives the Royal Assent, the new company will come into being on January 1, 1978.

It will be based in Stockholm close to Stansaab's premises, and the managing director is to be Gunnar Wedell, the present head of Stansaab.

The Saab-Scania process control division — based in Jönköping and employing 1,000 people — and the computer system unit of the aviation division based in Göteborg will not be included.

The two proposed elements of Svenska Data, Stansaab and Datasaab, will be of comparable size. Datasaab has about 1,500 employees in Sweden and Stansaab about 1,200.

The two will operate as separate divisions and the Datasaab division, based in Linköping, is to be headed by Harald Schröder, presently head of aircraft manufacturing at Saab-Scania.

"The internal structures of the new company have not yet been decided," Wedell told Computer Weekly.

"The merger will give both Stansaab and Datasaab additional resources in terms of both capital and personnel. The research and development and general experience of the new company will be much stronger with both teams working together."

Svenska Data will be owned equally by Saab-Scania and the Swedish government. It will take in all the foreign Datasaab subsidiaries apart from Datasaab Systems Inc in New York, which will remain a Saab-Scania company. A US partner is being sought for Datasaab Systems.

The capital of Svenska Data will be SKr 360 million (£40 million). In addition Saab-Scania will subscribe new capital totalling SKr 300 million (£34 million) up to 1981 and loans to a maximum of SKr 700 million (£80 million) will be guaranteed.

Redifon wins Brno orders

CONTRACTS worth £800,000 for Seecheck key-to-disc systems were picked up in Czechoslovakia during September and October by Redifon Computers. There were 19 in all and most were signed at the Brno Fair.

Apart from the VZKG steel works, which ordered six systems (CW, October 13), other Czech organisations that signed contracts included the Czech Savings Bank and the Czech State Insurance, both of which already have Seecheck systems. The first Slovakian order came from the Ministry of [illegible]

ROYTRON™ plug-compatible punch

Desktop punch with serial asynchronous RS-232C compatible interface. Designed to utilize ASCII defined control codes and operate with a terminal device on the same serial data lines. Punch accepts data at all standard baud rates up to 600 baud continuous or 4800 baud batched, utilizing a 32 character buffer.

Two modes of operation are provided: Auto Mode — Simulates Model ASR 33 Teletype punch using ASCII defined data codes (DC 2 and DC 4) to activate/deactivate the punch; Manual Mode — Code transparent mode. Panel switches control activation/deactivation of punch and associated terminal device.

MODEL 1060-AS
High speed compact, with self contained electronics and power supply. Complete in attractive, noise dampening housing.

For full details, write or call us
SWEDA INTERNATIONAL, INC.
Litton OEM Products
34 Maple Avenue, Pine Brook, N.J. 07058/(201) 575-8100
U.K. — ADLER BUSINESS SYSTEMS/OEM PRODS., Airport House, Purley Way, Croydon, Surrey, England

Appointments

LONDON	MANCHESTER	BIRMINGHAM	GLASGOW	BRISTOL	LONDON	MICHAEL WHITE
Derek Blakemore	Owen Kelly	Alan Escott	Owen Kelly	Alan Escott	Steven Bassingthwaite	Classified Advertisement Manager
01-261 8484	061-872 4211	021-356 4838	061-872 4211	021-356 4838	01-261 8174	01-261 8028/8658

HOLLAND

ANALYST/ PROGRAMMERS

£10,000 plus

Due to the development of a large new system one of our clients requires a number of Analyst/Programmers. If you have 2/3 years' experience in Cobol and an Online background preferable on IBM equipment we're interested.

The company is an International subscription service based in Lisse near the west coast of Holland, and just 25 minutes from Amsterdam.

The system is currently running on a 370/135 using DOS/SHADOW 11/IDMS, but it will be upgraded later this year to a 370/138 under OS with 1 Megabyte. If you have the required experience and feel that a move to this English speaking installation in Holland would be of interest please send your curriculum vitae to:

Rendeck

B. Mence
RENDECK NEDERLAND B.V.
A. J. ERNSTRAAT 157
AMSTERDAM
HOLLAND
or Telephone 010 31 20 461215

Systems Performance Analyst

Wiltshire £6000-£7000

The ICL Support Team supporting a large and expanding twin 2980 installation in Wiltshire require an experienced Systems Performance Analyst to collaborate with the customer on a wide range of system tuning and sizing activities. The main duties will include:

- tuning systems offering mixed local/remote batch, MAC and TP services
- building performance measurement tools
- sizing future workloads
- use of analytic and simulation system models.

We are looking for a person able to see work through in these areas from inception to completion and if necessary to direct ad hoc study teams to this end. You should have at least 2 years' experience in sizing and performance analysis, close familiarity with monitoring and modelling techniques, and an in-depth knowledge of 2900 hardware and software architecture.

Relocation expenses will be given where appropriate.

For further details please contact Roger Terry at ICL, Bureau West, Horton Road, Devizes, Wilts. SN10 2JB. Tel: (0380) 4921. Please quote ref. CW1572.

International Computers
think computers – think ICL
ICL

IBM VACANCIES

S/IOR	145 DOS/VS POWER	2 shift, City	£4750	Ref. 213
S/OP.	135 DOS/VS GRASP	3 shift, City	£3800+	Ref. 190
S/OP	135 DOS/VS POWER	2 shift, S.E. Ldn.	£4100	Ref. 216
OP	135 DOS/VS GRASP	3 shift, Mddx	£3800	Ref. 212
OP.	135 DOS/VS GRASP	2 shift, BERMUDA	£Neg.	Ref. 196
OP	145 OSVS1	3 shift, N. Ldn.	£3300	Ref. 219
OP	50 OS/MVT HASP	3 shift, Mddx	£4200	Ref. 193
PROG	or COBOL Exp	Surrey	£4800	Ref. 188
ASSEMBLER				
SYS DESIGNER	Some exp TP/OS	S. Herts	£6500	Ref 225

ICL VACANCIES

S/OP	1903T GII+.	3 shift, Mddx	£4000	Ref. 224
OPS. SNR	SVR 1902A GII	Days, S.W. Ldn.	£4000	Ref. 222
ANALYST	1902A	3 yrs exp. S W Ldn	£6000	Ref. 222

Tel: 01-353 8201/3 or write to: 47 Essex Street, London, WC2R 3JF

X·Calibur COMPUTER SERVICES

THE UNIVERSITY OF SUSSEX

PROGRAMMER (Male/Female)

Required for the on-line development of data processing systems for the Administration. Experience of PLAN is necessary and training will be given in FILETAB and GEORGE 3 if required.

The successful applicant will work closely with user departments in pleasant surroundings on the University campus which is situated about three miles from the sea.

Salary to £4,800 p.a. with four weeks' holiday plus an additional week at both Christmas and Easter.

Applications giving full career details and naming two referees should be sent to the Staff Records and Recruitment Officer, Sussex House, University of Sussex, Falmer, Brighton BN1 9RH.

Datasolve Datasolve Datasolve

Knight Contracts

IBM Programmers
with OS JCL experience

COBOL for MANCHESTER, LONDON and EUROPE*
PL1 for LONDON and GENEVA
BAL for LONDON
FORTRAN for UK and EUROPE*
(*French language useful).
Ring our consultants RICHARD KALUZYNSKI or SUZY GILLAM to register your availability or to make an appointment on 01-491 4706.

Operators

It's time your earnings kept pace with your experience
As long as you've been operating for 2½ years or more, we can find you the contracts to boost your earnings and your experience. Take a look at our current requirements. You may find just what you've been looking for.

ICL	GIII OPS
IBM	OS OPS
Honeywell	GCOS OS OPS
IBM	VM OPS

For further details or advice on these and other contracts still in the pipeline call Sue Smyth, June Mogg or Jane Asbury on 01-491 4706.

Knight Recruitment

Systems Engineers
(Trainee Analysts)
Up to £6,000 pa–City

A tempting career move for an experienced programmer, educated to degree standard with plenty of ambition and drive. Our client is one of the major mainframe manufacturers and currently has vacancies available within its support group responsible for medium to large range machines. Essential personal attributes are enthusiasm and an ability to work effectively with the users (including technical people), at all levels.
Comprehensive training will be given and there will also be a certain amount of travel involved for which a current driving licence is required.
Future prospects offer you the chance to move into DP Management, Sales or an overseas appointment.
Ref. JP/0062 London

Operators
Telecommunications–North London
£3,000 plus 30% Shift Allowance

Telecommunications Company with an excellent reputation as an employer needs two bright young operators with at least 12 months' Honeywell experience 60/60 6000 – preferably with knowledge of GCOS – to work a three-shift system in a go-ahead DP department. Good benefits and excellent career prospects within this large international group.
Ref. AM/0059 London

Paris, North Africa, The World
All yours as a Project Leader or Analyst Programmer with £10,000+

After training in Paris you'll be off to North Africa to advise clients of a major international computer manufacturer. After that you could work anywhere in the world. A Project Leader and also Analyst Programmers are needed with at least two years' COBOL experience and preferably some ALGOL. You must be French-speaking and ideally have a background in banking. Self-reliance, initiative and a willingness to live abroad are key requirements. **Ref. JP/0027 London**

Interactive Systems and database
Up to £7,000 for Analyst/Programmers and Analysts in West London

International petro-chemical construction giant needs able, ambitious men and women, ideally technical graduates, with experience of high-level languages on mainframes. Applications are many and varied, hardware includes IBM, Univac and minis, prospects include overseas travel.
Ref. JP/0012 London

Operator
Middlesex
£3,400 plus £110 Bonus pa

Publishing Company with an IBM 370/135 operating under DOS/VS, GRASP and Power, needs an operator with at least 12 months' DOS experience to work a two-shift system. Benefits include free meals, pleasant location and yearly bonus.
Ref. AM/0055 London

Senior Systems Analyst
£4,800–Leicester

You've had around 3 to 5 years' COBOL experience. You may have already handled projects on a large scale. You're a good communicator with a sound commercial background. You think that it's high time you made your next career move – [illegible] systems development.
Our client, a leading Insurance Company, can give you that chance. They will also give you the opportunity of taking advantage of their reduced-rate mortgage scheme.
Ref. B/057 Birmingham

Systems Analysts
Around £4,500–Lancs

This major manufacturing company operates a highly sophisticated production control system. So the sort of analysts they need will have around 4 years' sound DP experience, ideally of on-line, real-time systems using ICL 1900 machines.
This is an excellent opportunity to gain more experience and ultimately lead your own projects. Friendly, relaxed working atmosphere, easy travelling and good benefits.
Ref. B/054 Birmingham

Programmer
New Systems–High Interest
c. £3,500–Milton Keynes

Our client's 1902A – soon changing to a 2904 – handles all the accounting systems you'd expect to find in a major manufacturing and distribution company.
If you have a couple of years' COBOL experience – why not move into one of programming's most exciting areas and develop your career as well as your experience?
Ref. B/065 Birmingham

All vacancies are open to both male and female applicants.

01-491 4706 24-hour answer 'phone.
Knight Computer Services Limited, 14 Old Park Lane, London W1Y 4NL.

Knight

021-772 8331 Midlands Recruitment,
Knight Computer Services Limited, Woodlands Road, Birmingham B8 3BD.

Knight Computer Services Limited

Staff Services Division of BOC Datasolve Group and CSA a member of Computing Services Association.

For a better tomorrow, act today. To speed up your application or to get information on opportunities in the future, send us the coupon.

Name .... Area pref. ....
Address .... Number of years experience in
.... Operating [ ] Programming [ ]
.... Analysis [ ] M/C & Lang [ ]
Tel: (home) .... Salary required ....
Tel: (work) .... Ext. .... Position required: Permanent [ ] Contract [ ]

Working with American Express says more about your future than any ordinary job ever can

Working with American Express says a lot about you. It says you are a real professional and that you have a career with a bright future. It says you have a desire to work with a company which has an enviable record of expansion. Because of this expansion, American Express are now looking for the following people to contribute to their future success.

EUROPEAN SYSTEMS GROUP

SENIOR SYSTEMS ANALYST

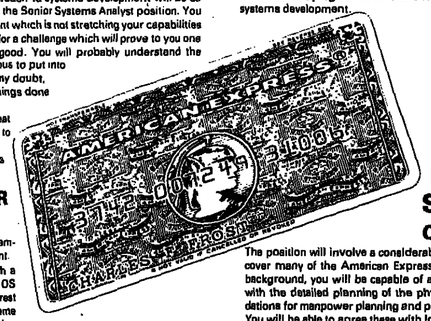
Salary: Circa £6,000 per annum plus substantial mortgage subsidy

Candidates will have at least 4 years' systems experience including multi-person project control. During that time, you will have played a significant role in the development of at least two major projects. These projects should have a financial base and you should also have experience of the concepts of database, and, ideally will have worked in a teleprocessing environment. You will have a strong belief in your ability to develop efficient systems and will be able to convey this confidence to more junior members within the department. Your ability to establish a rapport with users will be one of your major assets, and you will get things done on time. Ref: 1928 CW.

SYSTEMS ANALYST

Salary: Circa £5,000 per annum plus substantial mortgage subsidy

You will have been working in a commercial / financial environment for between 2 and 3 years and your philosophy and approach to systems development will be as positive as that displayed by applicants for the Senior Systems Analyst position. You are probably now working in an environment which is not stretching your capabilities as much as it should, and are now looking for a challenge which will prove to you one way or the other, whether you are any good. You will probably understand the concepts of database systems and be anxious to put into practice some of your thoughts. Without any doubt, you will be ambitious and anxious to get things done quickly. At American Express you will be given that opportunity. You will learn a great deal over the next few years, not only how to develop computer systems, but also how systems can influence business, and that is surely what systems analysis is all about Ref. 1929 CW.



LEAD PROGRAMMER

Salary: circa £5,000 per annum plus substantial mortgage subsidy

A programmer is a programmer is a programmer, so they say, but this one is is different. Have you got a COBOL background with a good knowledge of Assembler in an OS environment? Then this position must interest you. American Express are developing some very interesting systems not only here, but also elsewhere in Europe and they want to recruit a Lead Programmer who will assist and direct a number of more junior programmers in the development of new systems. One of the things that is particularly interesting about this position, is that with the development of these more sophisticated systems, and the introduction of new hardware both in the mainframe and mini areas, you are going to widen your experience significantly during the next couple of years. You are also going to provide strong technical leadership and assistance to more junior members of staff, and this will equip you for a management role at a later date.

Too many companies regard their programming department as a group of 'coders' with no real future; that is one of the reasons why there is so much frustration in the programming area. American Express do not think like that. Here the opportunity career wise is really significant. Ref. 1930 CW.

SYSTEMS PROGRAMMER

Salary: circa £5,000 per annum plus substantial mortgage subsidy

The systems programming area is one of the most important and often the most under-rated areas within a computer environment. American Express realise how important it is and now wish to recruit someone to join a small team of systems programmers. You will have a thorough knowledge of IBM Assembler ideally in an OS background, some knowledge of communications and an appreciation of time-sharing concepts, plus an intuitive approach to problem solving. The major responsibilities concern the "detailed tailoring" of software to American Express's requirements. This tailoring will be based on a continuing analysis of applications systems and the advice of hardware and software suppliers. The systems programmer will be aware of new hardware and software available, and the selection of new products will, to a large extent, depend on recommendations made by the systems programming group. You will be able to solve problems that occur in the software area and provide technical assistance to the application programmers. Ref 1931 CW.

PROCEDURES SUPERVISOR

Salary: circa £6,000 per annum plus substantial mortgage subsidy

Our client wishes to recruit someone to be totally responsible for procedures, relating to both new and existing clerical and computer systems. This person will be responsible for the control, development and training of procedures staff. You will be expected to establish and maintain company standards of documentation for all clerical and computer procedures. At the same time, establish a proper development and education programme for users and ensure there is complete familiarity with all systems development.

Close liaison with the systems group and the Data Processing Operations group is an essential feature of this job. The position requires someone who can communicate both in writing and verbally. Someone who can quickly 'get to grips' with American Express systems. You should have a strong commercial background and will probably now be working as a Project Leader, either in an Organisation and Methods or Computer Systems department. Ref: 1932 CW.

INTERNATIONAL SYSTEMS GROUP

OPERATIONS PLANNER

The position will involve a considerable amount of travel. Your responsibilities will cover many of the American Express International sites. With a strong operations background, you will be capable of assisting local staff at these International sites, with the detailed planning of the physical environment, assisting with recommendations for manpower planning and producing plans of future installation expansion. You will be able to agree these with local managements based on a proposal initially drawn up by yourself. You will be able to indicate whether a site chosen is economically viable from the operations point of view, and generally prepare the ground for the smooth and efficient installation of the International Systems Group's service.

This position will involve significant travel, on occasion at short notice. The ability to get on with users in many different national environments is vital. Ref. 1933 CW.

Almost all the positions advertised are new. They indicate the degree of expansion within American Express. The company is dynamic and the growth during the last two years has been very impressive. The career opportunities are first class. With the planned Company expansion, challenge and reward both in financial terms and career development are probably second to none.

All the positions offer a mortgage subsidy and there is also an excellent non-contributory pension scheme, a family medical scheme, a heavily subsidised canteen and a sports and social club.

You will see that there is an application form on the opposite page. We would like you to fill in the form and send it back to us as quickly as possible. We will then be in touch with you by return to arrange a mutually convenient time to talk. We would like to meet you as quickly as possible. We look forward to hearing from you.

Computing Services Association

John Goldsmith (Computer Recruitment) Ltd., 15, Buckingham Palace Road, London, S.W.1.
Tel: 01-828 5356 – 24 hour answerphone service.

JOHN GOLDSMITH (Computer Recruitment) Ltd.

JOHN GOLDSMITH (Computer Recruitment) Ltd

15 Buckingham Palace Road, London SW1 OPP
Telephone: 01-828 5356

CONFIDENTIAL

Position sought .....
Ref. No. .....

Applicant

Surname _____ First names _____
Address _____ Home Telephone Number _____
Business Telephone Number *Will only be used with utmost discretion* _____
Basic Salary _____ Benefits _____
Date of Birth _____ Nationality _____ Married / single _____
Period of notice required _____ No. of children and ages _____
Foreign languages spoken _____
Condition of health _____
Any severe disabilities _____
Are you a house owner? _____ Are you prepared to relocate? _____
Are you prepared to travel during the course of your work? _____

Education

Schools	From	To	Examinations passed

Universities / Further Education	From	To	Course taken and result

Other qualifications _____ Professional societies _____
Relevant courses attended _____

Employment

(current employer first)

From	To	Name and Address of Employer	Final Salary	Position, responsibilities and reason for leaving

ADDITIONAL INFORMATION

Please provide details of last two positions and more precise details of technical experience.
Attach additional sheets as necessary.

Experience

Operations

Position	How Long For	Hardware Systems worked on	Operating Systems used	Shift System worked

Programming

Position How Long	Programming Languages	Operating Systems used	Hardware used	Applications

Methods and Procedures

Positions Held	How Long?	Major Projects

Systems Analysis and Design

Project Description	Type of Hardware	Did You (tick where applicable)				No. of Staff Controlled
		Control Project	Design	Program	Implement	

Managerial / Supervisory

Position Held	How Long	Major Projects	Number of Staff Controlled

Technical

Please indicate experience of any section below, with more precise details in 'Additional Information'

Operating Systems
IBM DOS ☐
IBM OS ☐
IBM MFT ☐
IBM MVT ☐
IBM VS1 ☐
IBM VS2 ☐
IBM VM ☐
ICL GEORGE 1 ☐
ICL GEORGE 2 ☐
ICL GEORGE 3 ☐
ICL GEORGE 4 ☐
SYS 4 J LEVEL ☐
EXEC 8 ☐
GCOS GCOS ☐
'OS 2000' ☐
BURROUGHS MCP ☐
OTHER ☐

File Management
BOMP ☐
DBOMP ☐
CLASS ☐
PICS ☐
IMS ☐
IDS ☐

TOTAL ☐
NIMMS ☐
CFMS ☐
FORTE ☐
DBMS ☐
OTHER ☐

Communications
CICS ☐
TCAM ☐
BTAM ☐
VTAM ☐
DRIVER (1900) ☐
DRIVER (SYS4) ☐
TASK MASTER ☐
ENVIRON ☐

TABN ☐
DMS ☐
FIND II ☐
MARK IV ☐
DL/1 ☐

CANDE ☐
NDL ☐
OTHER ☐

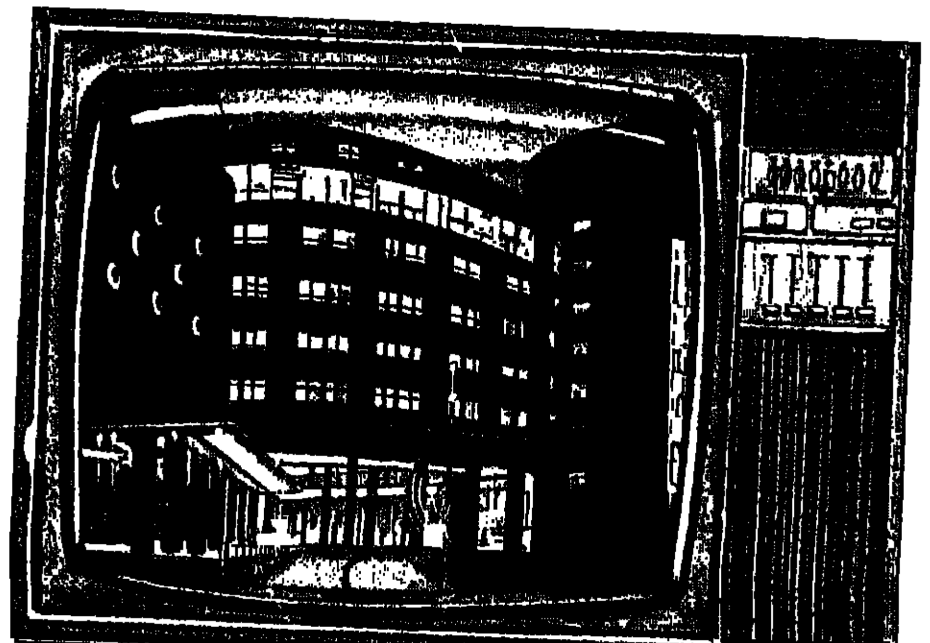
Computing Services Association

John Goldsmith (Computer Recruitment) Ltd., 15, Buckingham Palace Road, London S.W.1.
Tel: 01-828 5356 – 24 hour answerphone service.

JOHN GOLDSMITH (Computer Recruitment) Ltd.

SYSTEMS ANALYSTS & PROGRAMMERS

Come to an Open Evening at Television Centre on Tuesday, 15th November between 6pm-7pm.



The BBC would like to invite business orientated Systems Analysts, and also Programmers, to an Open Evening on Tuesday, 15th November between 6pm–7pm. Meet us at Television Centre, Wood Lane, Shepherds Bush (opposite White City Central Line Station).

The purpose of the visit is to explain the role of computers in Broadcasting today, and includes a brief tour of Television Centre. Our application areas include aids to Production and Transmission Planning, Management Information Systems, and Financial and Stock Control Systems.

We think you'll find the visit extremely interesting, particularly if you're a Systems Analyst concerned about solving user problems, with 3/5 years experience; or a Programmer with 2/3 years experience with ICL equipment and writing COBOL programs in a business environment.

And we hope you'll find our salary scales equally interesting: Analysts (£5050/£6000); Analyst Programmers (£4575/£5400); Programmers (£3625/£4950).

If you can't come along, write or telephone, Appointments Dept., BBC, London W1A 1AA, quoting reference no. 77.G.1572.CW.. Tel. 01-580 4468 Ext. 2292

BBC

Senior Programmer/Analyst

. . . to join our Computer Department which provides a service to all refinery administration and technical departments.

Applicants should preferably have an education to GCE 'A' level with at least 5 years' programming and systems analysis experience. Languages used are COBOL, FORTRAN and PLAN.

Our equipment consists of an ICL 2904 configuration plus a DCT 132 terminal linked to computer facilities at other BP centres in the UK.

Kent Refinery is part of the BP Group and this position could lead to further career development opportunities wihtin BP. Salaries and benefits are competitive and there is a non-contributory pension scheme. Write or telephone for an application form, quoting ref. CW1, to:

M. J. Conway, Personnel Officer, BP Oil Kent Refinery Limited, Isle of Grain, Rochester, Kent, ME3 0AG. Tel: Medway 272044, ext. 556.

BP Oil

PERTH AND KINROSS DISTRICT COUNCIL

Systems Analyst/ Programmer

The District Council are considering the appointment of a Systems Analyst/ Programmer in the Finance Department in Perth.

Salary scale AP III £3474-£3825 (plus Phase 1 and 2 supplements of £501-£519). Local government hours and conditions of service will apply. Housing needs will be considered in appropriate cases.

Application forms and further particulars are obtainable from the Chief Executive, Council Chambers, 3 High Street, Perth. Closing date for receipt of completed applications is Friday, 25th November, 1977.

SOFTWARE TECH. INSTRUCTOR

N.W. LONDON

A computer educational instructor possessing a Degree or equivalent, with a working knowledge of RPG II & all applications software at functional capability level is required to identify, develop and conduct training and educational courses for large Co

SENIOR SYSTEMS ANALYST

NR. ESHER

A Systems Analyst with a minimum of 2 years experience is required by a large go ahead Company which is expanding fast. Database experience an advantage — duties include business problem analysis, computer system design and implementation of batch and on-line.

Please phone for an Application Form

DEPUTY TEAM LEADER

W. SURREY

A Programmer with A level standard maths and a proven leadership ability is required as deputy Team Leader. Knowledge of ASSEMBLER & FORTRAN with scientific programming exp. and PDP II

ANALYST/PROGRAMMER

UXBRIDGE

A person ideally with one completed project and with a knowledge of COBOL programming is required to guide 1-2 programmers and design and implement programs as dictated by overall systems design.

AMES PERSONNEL

TELEPHONE: 01-767 0611

Systems Manager

c. £7,000 p.a.

Grundig International are one of the leading manufacturers of quality electrical goods. We are poised to undertake a long-term project to streamline our conventional/computer related systems to bring about a coherent and flexible organisation to meet future market demands. Recently an IBM Systems 3, Model 15 has been installed.

To lead these changes we are looking for a systems design specialist with a professional approach to organisational change who will report to the Financial Director.

Success will be measured in terms of precise planning control and implementation, utilising outside software facilities and an understanding of the realities of maximising the contribution of systems within a medium sized company.

An assistant is also required to provide detailed programming support to these activities.

The positions carry excellent remuneration packages which will reflect the envisaged contribution of the successful applicants.

To discuss your career aspirations, please telephone The Personnel Manager, Grundig International Limited, Newlands Park, Sydenham, London, S.E.26. Tel: 01-659 2468.

GRUNDIG

Junior DOS/VS Systems Programmer

Morgan Guaranty, one of the world's leading banks is seeking a Junior Systems Programmer to work in support of its IBM 370 computers in its new offices in Stratford E15.

This position will involve working in the Computer Technical Support group and being trained both formally and on the job in all aspects of systems programming.

The Computer department is currently involved in a major automation exercise with the resulting systems, both batch and on-line, being implemented in phases over the next few years

The successful applicant will have at least two years programming experience on IBM 360/370 mainframes, one or more years Assembler Language programming, OS or DOS/VS. He/she will be involved in the technical support of all of the bank's systems currently being developed and using CICS/VS for its on-line systems.

The bank pays particular attention to career development and provides both inhouse and external training.

A competitive salary will be paid, reflecting the importance of the position and in addition there are attractive fringe benefits which include annual bonus, low cost mortgages and a non-contributory pension scheme.

Please write to: Mr. R. F. Bingham, Personnel Department, Morgan Guaranty Trust Company of New York, PO Box 33 Lombard Street, London, EC3P 3BH.

Morgan Guaranty Trust Company of New York

A NATIONAL BANK in THE MIDDLE EAST

High rewards + Career development

OUR CLIENT is a major bank with many international connections, which undertakes highly diverse activities within the banking field. They have investigated the need for computerisation in a very thorough and professional way, and will take phased delivery of two NCR Criterion mainframes during the next 12 months, plus further systems later. The bank now requires high-calibre professionals to fill the key positions described below.

ENVIRONMENT. The climate is hot, but air conditioning is standard. Social facilities are limited but developing rapidly within an economy experiencing an enormous rate of expansion. There is ample scope for adaptable individuals to enjoy an active social life.

ACCOMMODATION. Fully furnished modern flats with free utilities are provided for employees and their families.

CHILDREN. Generous schooling allowances are given, but local education beyond the age of 11 years is problematical. Except for the most senior position an applicant with more than 2 children is likely to be at a disadvantage, unless he is prepared to leave his family in the U.K. Return holiday fares are paid for the whole family. Should his family remain in the U.K., the cost of additional periodic visits to them will be paid.

MEDICAL TREATMENT. Medical facilities are good and there is free private treatment for the employee and generous provision for his family.

CONTRACT OR PERMANENT. Recruits may take contracts or join as permanent employees.

TRAINING. Appropriate training will be provided.

D.P. MANAGER
to £20,000 p.a. TAX-FREE

+ FURNISHED MODERN FLAT + CAR
+ OTHER MAJOR BENEFITS

RESPONSIBILITIES: All computer facilities and related activities.

CANDIDATE PROFILE:

1) Will almost certainly have good knowledge of banking systems.
2) Must have good experience of computer systems development and DP management within a sizeable mainframe installation.
3) Will be capable of achieving results through people.
4) Age probably 30 to 45.

CW/917/M

SENIOR ANALYSTS
to £12,500 p.a. TAX-FREE

+ FURNISHED MODERN FLAT + CAR or assistance
+ OTHER MAJOR BENEFITS

RESPONSIBILITIES: All aspects of systems investigation; analysis, design and implementation.

CANDIDATE PROFILE:

1) Minimum of 6 years' D.P. experience, including programming and all aspects of systems development and implementation using mainframe computers.
2) Knowledge of banking systems.
3) Age probably 24 to 40.

CW/917/A

OPERATIONS MANAGERS
to £11,250 p.a. TAX-FREE

+ FURNISHED MODERN FLAT + CAR or assistance
+ OTHER MAJOR BENEFITS

RESPONSIBILITIES: All aspects of a mainframe computer and its operation.

CANDIDATE PROFILE:

1) At least 6 years' experience of computer operations within mainframe installations, ideally including an NCR 8550 or 8250.
2) At least 2 years as an Operations Manager.
3) Age probably 23 to 36.

CW/917/O

SENIOR PROGRAMMER
to £11,250 p.a. TAX-FREE

+ FURNISHED MODERN FLAT + MAJOR BENEFITS

RESPONSIBILITIES: Leading programming team plus participating in programming work.

CANDIDATE PRODFILE:

1) At least 4 years' programming experience including good COBOL. Experience of NEAT/3 would be an advantage.
2) Experience of leading a team or demonstrable ability to do so.
3) Age probably 23 to 36.

CW/917/S

COBOL PROGRAMMERS
to £10,000 p.a. TAX-FREE

+ FURNISHED MODERN FLAT + MAJOR BENEFITS

RESPONSIBILITIES: All aspects of the writing and testing of programs.

CANDIDATE PROFILE:

1) At least 3 years' programming experience including good COBOL. Experience of NEAT/3 would be an advantage.
2) Age probably 20-30.

CW/917/R

★ THE POSITIONS DESCRIBED ABOVE OFFER THE OPPORTUNITY NOT ONLY TO MAKE CONSIDERABLE SAVINGS BUT ALSO TO ENJOY CAREER DEVELOPMENT.

★ PLEASE TELEPHONE OR SEND A C.V. WITHOUT DELAY AS THE TIMESCALE OF THE RECRUITMENT ASSIGNMENT IS VERY SHORT.

DPSC

DPSC Group Limited, Crown House, Morden, Surrey, SM4 5EU. Telephone: 01-540 8311

International Recruitment and Search Consultants to the Computer Industry.

AUSTRALIA

IF YOU HAVE THOUGHT OF MIGRATING TO AUSTRALIA, CONSIDER THE FOLLOWING.

CONTROL DATA AUSTRALIA has a solid record of achievement in the marketing of systems in the areas of education, scientific, wagering, government and manufacturing. In recent years, the Company has consistently achieved or exceeded all of its established sales targets. In addition, Control Data has its own Australian manufacturing facility, operates one of the country's largest and most comprehensive service bureaus, and is a leader in the marketing of advanced education and scientific systems.

CONTROL DATA AUSTRALIA requires people with expertise to work in the above mentioned areas. Vacancies exist in Melbourne and Sydney, and occasionally in Perth, Adelaide, Canberra and Brisbane. We do not intend recruiting in the United Kingdom in the near future but if you are thinking of migrating to Australia why not contact us for further information about our employment opportunities.

CONTROL DATA AUSTRALIA seeks experienced

- Commercial Analyst/Programmers (Cobol experience a must)
- On Line Real Time Network Programmers
- Pre Sales Analysts
- Systems Programmers
- Proven Systems and Bureau Salesmen
- Customer Engineers (CDC, IBM or ICL System 4 experience preferable)

CONTROL DATA AUSTRALIA offers successful applicants an excellent salary package with includes Company car or car allowance, superannuation, 4 weeks annual leave with a 17.5% leave loading, excellent working conditions and career opportunities.

If you are interested in applying for a position with CONTROL DATA AUSTRALIA please send your resume, including location preference in Australia, address and contact telephone number in U.K. to

Miss Sandra Beesley
Manager, Recruitment and Selection

CONTROL DATA AUSTRALIA PTY. LIMITED
598 St. Kilda Road, Melbourne, 3004. Telephone: (03) 51 0351.

CONTROL DATA

4043011

INTERDATA

Further expansion of the European Software Development Group has created new opportunities.

Systems Support Programmer

Up to £5,000

A SYSTEMS SUPPORT PROGRAMMER is required to support Operating Systems, Systems Software and Utilities used by the group. Design and implementation of utilities for users and operations staff, liaison with users within the group and with Interdata personnel in the United States will form important components of the job. In addition the systems support programmer will act as Systems Software Librarian for the group.

Candidates will have 1-2 years' programming experience, preferably in assembler and should have experience of this type of work.

This appointment offers unlimited career potential to individuals with the necessary background, experience and qualities.

Salary will be commensurate with abilities and experience and will range up to £5000.

If you are interested, call or write to PAUL JARDINE.

INTERDATA LIMITED
227 Bath Road Slough SL1 4AX
Telephone Slough 34511

Terminal Networks and Distributed Processing

North Midlands Home Counties

Consultants. Analysts. Programmers And Demonstrators

Salaries £3,500 to £6,500

New development within the support group of this well respected marketing organisation have resulted in several genuine career openings being created. The earnings packages are generous and the structured career development plans makes promotion a real possibility — depending on YOUR efforts. Several new products have been recently introduced and you will be involved in either developing packages and/or implementing and supporting new sites. You will be taking part in a concerted team effort to establish a solid customer base and will be working in a fast moving, challenging environment.

Qualities required:

Demonstrators

You will have the ability to impart technical information to inexperienced personnel — either informally, or in "classroom" situations. You must have a flexible attitude and any experience of terminals or direct data entry devices, and/or product demonstrating will be of particular interest. All necessary training will be provided.

Analysts

You will be able to carry out pre-post sales support duties and represent the company's interests to its clients in addition to possessing the qualities mentioned above. You will have a programming background and have completed at least one systems project — any involvement in data communications or specialised applications such as retail/distribution, banking, insurance or engineering make you of particular interest to our client.

Programmers

You must be mobile, self disciplined and keen to succeed. You must have gained a minimum of 2 years' programming experience in COBOL, RPGII or ASSEMBLER. Any prior knowledge of terminals, key to disc or distributed processing systems will be most useful. Full product training will of course be provided on commencement.

Consultant

At present you will have control of a team of programmers and analysts, you should have had at least 5 years' experience of analysis and be capable of handling multi-project situations. You will have a flair for organising and motivating your staff and will have specialised knowledge of one or more of the applications areas mentioned above.

If you wish to benefit from the growth of this already established company, then telephone our Manchester office now, quoting reference: CW64-7M. Interviews can be conducted in either Manchester or London.

01-686 9693 (24 HOUR ANSAPHONE) 19, PARK STREET, CROYDON, CR9 ITN | 061 236 2419 FAULKNER HOUSE, FAULKNER STREET, MANCHESTER, M1 4YD

COMPUTER AND PROFESSIONAL PERSONNEL CONSULTANTS

CAPP ASSOCIATES LONDON AND MANCHESTER

Computing Services Association

Computer Operator

Honeywell 62/40

Wiltshire **Salary £3,250**

We are in the process of relocating our headquarters, including the computer installation, to pleasant surroundings in Wiltshire.

We are taking delivery of a new Honeywell 62/40 and have a vacancy for an operator with a minimum of two years experience on small to medium sized computers in a multi-programming environment.

The successful applicant will be given every opportunity to develop their career.

Benefits include single day shift working and generous relocation expenses in appropriate cases.

For an application form please write or telephone:

Alan Eggelton
Mears Bros Holdings Ltd.
154/158 Sydenham Road
London SE26 5LA
Tel: 01-778 7851

ANALYST/PROGRAMMERS

Crawley, Sussex. Up to £5000 p.a.

* Mallory Batteries manufacture and market the high performance 'Duracell' range of batteries throughout Europe.

* The growth in our European markets has resulted in an expansion of the data processing operations. Development of new and existing systems, on-line facilities and distributed processing is planned for the current five IBM System 3 machines and new hardware installed throughout Europe.

* Candidates should have at least two years' experience in either COBOL or RPG II and a thinking attitude to programming.

* These positions will provide ample opportunity for career development in a progressive company.

* Our conditions of employment are those you would expect from a multi-national organisation and we are prepared to assist towards re-location expenses where appropriate.

Please write, with full C.V. to:—
G. M. Smith, Personnel Manager, Crawley or telephone (CRAWLEY 26041) for an application form.
To discuss the job requirements in more detail please telephone BOB PHILLIPS in our Data Processing Department.

MALLORY BATTERIES LIMITED, Gatwick Road, Crawley, West Sussex RH10 2PA

MALLORY DURACELL®

Assembler Programmers

Information systems customer support

London based

NCR offers rare opportunities for Programmers to step up the computer ladder, using their current Assembler experience

These are get-up-and-go positions, taking you out of the rut and into the customer environment. You would guide their operating staff in the implementation of Computer Output Microfiche (COM) on NCR Recorder/Processors Series 110/115.

Our software packages support the most advanced business recorders in the world – another outstanding example of NCR's growing dominance in the computer field. Already, over 100 users in the U.K. with large up-to-date installations have adopted our COM systems. As our COM systems are used on all major manufacturers equipment you will have the chance to broaden your equipment knowledge.

You can see why sound Assembler experience is essential – whether gained on either NCR or any other major manufacturers equipment. Some positions will however necessitate IBM Assembler under OS or DOS with good JCL knowledge.

Give us this and we'll give you a very attractive salary, full expenses and a worthwhile big-Company benefit package. Plus realistic career development into analysis, higher-level customer support services or even sales. It depends on your ambitions.

It couldn't be a better time to join our multi-national activity – we're advancing rapidly in all hardware and software areas – so telephone now to get the facts. Or write giving brief details quoting ref (CW/1) to

Geoff Hodder, Recruitment Officer, NCR Limited, 206 Marylebone Road, London NW1 6LY. Tel: 723 7070

NCR

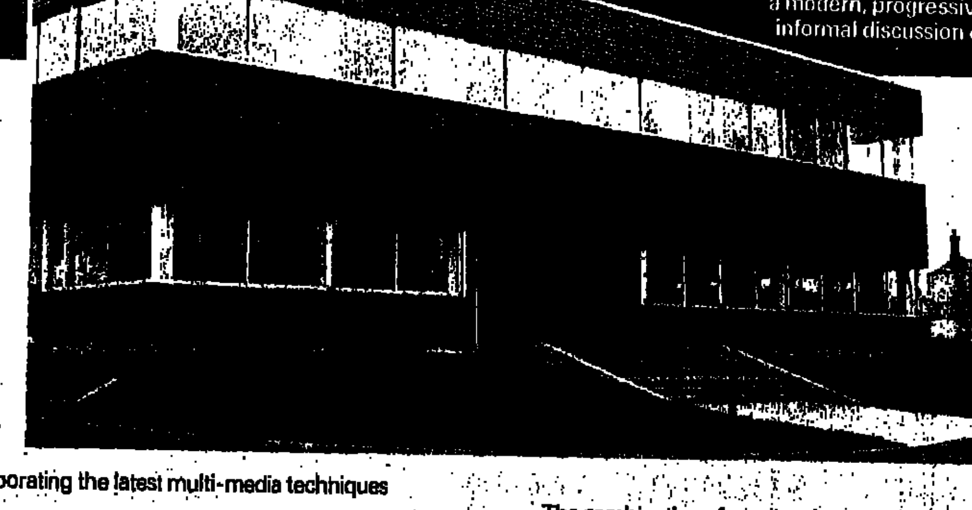
SOUTH WEST THAMES REGIONAL HEALTH AUTHORITY

Ever felt that you would like to put your hard-earned professional skills to really satisfying use? Job satisfaction is not easy to find, but we believe that you will find it with The South West Thames Regional Health Authority. You will also find excellent salaries, with guaranteed annual increments, and job security; and the expanding role of computers within the Health Service ensures considerable potential for DP professionals.

The Authority needs you to help provide medical, financial and management information services to the 150 hospitals in a region looking after 3 million people.

The purpose built computer centre, situated in London, SW17, houses a new ICL 1903T running under George 3, with MOP. The SWTRHA intends to remain at the forefront of technical development with OMR, microfiche, communications, database techniques and structured programming techniques currently under evaluation.

If you want a little more purpose in life and to enjoy your work in a modern, progressive environment, 'phone now for an informal discussion of the following opportunities.



SYSTEMS ANALYSTS

£4408–£5857

Required to join a small team of professionals tackling real problems.

The Authority's ambitious plans include the development of several large real-time and batch systems for a wide variety of applications including budgetry control, patient monitoring, remote data capture and the provision of management information to hospitals.

Successful candidates will enjoy a high level of user liaison as well as contact with other Health Authority Computer Centres nationally.

Analysts are closely involved with user training, incorporating the latest multi-media techniques including videos.

This is no back seat job! We are looking for enthusiastic, talented professionals who will lead, not just contribute.

COMPUTER OPERATORS

SINGLE SHIFT
c£3000

The essential requirements for these excellent, ground-floor opportunities are an ICL 1900 background coupled with a sound knowledge of George 3.

INTERMEDIATE PROGRAMMERS £4408–£5218

Applications are invited from programmers with at least 3 years' experience together with a thorough knowledge of ICL 1900 COBOL (George 3 training will be given where necessary).

Successful candidates will enjoy some systems involvement and will be responsible for all aspects of development and testing.

They will also be expected to contribute to the design of files and assist in the supervision of more junior programmers.

The combination of small project teams, structured programming, on-line program development, closely controlled standards and quiet, pleasant, offices provides the ideal climate for high productivity and a quality of experience to be gained in few other establishments.

Telephone me, Les King, up to 8.00 p.m. each evening, or write, enclosing brief career details to:
Modem Computer Services Limited,
FREEPOST, London SW11 6BR.
Telephone: 01-228 2283

MODEM
Consultants in Data Processing

SENIOR PROGRAMMER/ANALYST

A vacancy exists in our Data Processing Department for an experienced Programmer to assist in the maintenance and development of commercial systems. The Company operates a Burroughs B1715.

Applicants should be at least 25 years of age, have 3 to 4 years' commercial data processing experience — preferably using RPG II and be of a mature personality enabling them to communicate with people at all levels.

The Company is highly successful in its field of operations which entails the manufacture and supply of Educational Stationery and Teaching Aids. An attractive salary is offered for the post and the Company operates a staff restaurant and Sports and Social Club.

Applications, stating age and experience to date should be addressed to:

General Manager
Philip & Tacey Limited
North Way, Andover, Hants.
Tel. Andover 61171 (0264)

SYSTEMS PROGRAMMERS

HONG KONG

Chartered On-line Limited, Hong Kong's largest computer service organisation, requires additional specialists to meet the demands of its expanding business.

Immediate requirements are:

(1) Univac 1106 Systems Programmer with at least 3 years' EXEC 8 experience.
(2) Minicomputer Systems Programmer/Assembler Programmer preferably with PDP11 or Data general experience.

These appointments provide an attractive remuneration package, including travel and housing allowances. Maximum income tax is 15 per cent of salary. Write with full details by 24th November, to the Technical Manager, Chartered On-line Ltd., Asian House, Hennessy Road, Hong Kong. Interviews in England early December.

Edmund Howard's Client Album

SENIOR PROGRAMMER — **LONDON, SW1 £6000**

A highly specialised consultancy is currently seeking an experienced senior programmer to assume total responsibility for the company's commercial programming activities.

The successful candidate should possess a sound knowledge of Cobol coupled with in-depth experience of the IBM DOS Operating System. An ability to deal with personnel at all levels is essential. Additional duties will include providing technical support to the operations team to ensure that objectives are met within the timescales laid down.

This is a key position for someone with the right qualities whose background combines both skill and professionalism. In keeping with the company's fine reputation for providing a good and efficient service.

For further details please quote CW 160.

REAL-TIME AVIONICS COMMUNICATION SYSTEMS — **U.K. AND EUROPE**

The Avionics Aerospace industry is one of the most progressive areas of Data Processing. New technological developments within the industry have created a need for specialist skills of a very high order. Computer professionals (both hardware and software) with experience of Mini real-time communication systems, coupled with a working knowledge of Assembler and/or Fortran will find the challenge of this competitive environment both refreshing and stimulating. Candidates should hold a degree or equivalent and be willing to assume total responsibility at either Programmer, Analyst/Programmer or Consultant level. The salaries for these positions, although negotiable, will reflect the experience and commitment of the individual.

For further details please quote CW 161.

SYSTEMS ANALYST — **SURREY SALARY c. £5500 p.a.**

We are recruiting on behalf of a large independent public organisation who operate as financial, professional and commercial agent for overseas government and public authorities.

SYSTEMS ANALYST. A systems analyst is required for a team concerned with the design of a major new system for order processing and accounting. Candidates should preferably have at least 4 years' experience of programming and systems design including on-line systems and data base file structures. Knowledge of Honeywell IDS and TDS would be an advantage. Starting salary will be negotiable up to £5,500.

For further details please quote CW 162.

COMPUTER SCIENTISTS FOR BASIC SOFTWARE DEVELOPMENT WEST OF LONDON

Salary up to £6,500

Further expansion and development within our client's European Software Development Group has created opportunities for Computer Scientists to be involved in the design and implementation of compilers, T.P. monitors and data base systems. Candidates should possess systems software development experience which will probably have been gained with a Computer Manufacturer or software house.

These appointments offer unlimited career potential to individuals with the necessary background, experience and qualities. Senior candidates can expect to assume project leadership responsibility in the not too distant future. For further details please quote CW 163.

Edmund Howard & Partners
Computer Personnel Consultants
5 Brighton Road, Surbiton, Surrey. Telephone 01-399 9183.
58 Grafton Street, Dublin. Telephone 776 756.

Holland

IBM Cobol Programmers
Up to £9000 p.a.

This is an ideal opportunity for IBM COBOL programmers with a minimum of two years practical experience and good educational background to relocate to an attractive part of Holland.

Our client, a very large commercial group, based in The Hague is looking for young programmers who wish to further their career in an expanding environment. Attractive salaries will be offered to successful candidates and fringe benefits include four weeks holiday, non-contributory pension, company paid course, initial assistance with accommodation and special tax concessions.

Hardware used is an IBM 370/125 with 256K bytes (to be upgraded to 384K bytes). The operating system is DOS/VS with SHADOW 11. Further expansion plans involve an IBM 370/138 and the utilisation of structured programming techniques.

New projects include working on systems for Equipment Planning and Control, Financial Administration, Project Control, Cost-Estimates etc. Other duties are maintenance of existing systems and installation of packages.

London interviews will be conducted by our Holland representatives during the week commencing November 21st 1977.

Kingston: 44 Wood Street, Kingston upon Thames, Surrey. Telephone 01-549 3212 (24hrs) Telex 27950
Dublin: Canberra House, 24 Lower Leeson Street, Dublin 2. Telephone 762170/762188/785692 Telex 30742
Amsterdam: 'Riviervisteats' Amstelidijk 166, Amsterdam 1010. Telephone 461844 Telex 11336

Computing Services Association

Change to Distributive Processing Systems Software Engineer
c.£6000
West London

As technology has advanced, processing power and memory are not only to be found in mainframes, but also in terminals, intelligent terminals. The philosophy of Distributive Processing is now very much a reality and a fast growing market. A worldwide company require a Systems Software Engineer to work in advising its network of distributors on the use of terminal processors and to solve the problems of distributive processing systems.

The company is looking for people with preferably a Computer Science degree and over two years experience at a basic level on several different machines.

The successful applicant will be given extensive training to achieve and maintain a high degree of familiarity with the product. He/she will then be involved in identifying and solving basic software and applications problems. This job will lead to Systems Project Manager and some overseas travel may be involved.

If you are attracted to the forefront of technological development ring me, Stella Mitchell, and I will advise you.

TOMORROW'S WORLD

Our client is a U.S. based mini/midi computer manufacturer with an eye to the future. Their advanced technology makes them market leaders in their field — where they go, others follow. They have a substantial customer base in the manufacturing, industrial, scientific and technical sectors, and are now penetrating the commercial sector with equal success.

Their modern Headquarters in South Berkshire reflect their excellent company image.

SALES — NORTH AND SOUTH TERRITORIES

Base salaries circa £6,000 p.a. plus attractive incentive scheme with 80% of total earnings guaranteed, plus company car, plus profit sharing.

The company have vacancies for three sales people — two to establish new territories, which can be defined to suit the location of the successful candidates; based in the North, with support from a Manchester office.

The other to cover a Southern territory of a 50/70 mile radius of Central London.

SALES — U.K. KEY ACCOUNTS

Base salaries circa £6,000 p.a. plus attractive incentive scheme with 80% of total earnings guaranteed, plus company car, plus profit sharing.

Opportunities exist for two sales people to take responsibility for key named accounts in the U.K.

We are looking for successful MINI computer sales people with a proven track record to join a highly professional sales team, with excellent technical and engineering support.

Alternatively, if you are a relatively young Systems Analyst, presently working within a large company environment and have ambitions to expand your horizons, this could be your opportunity.

SALES SUPPORT ANALYSTS

Base salary £5,500 p.a.-£6,500 p.a. plus company car, plus profit sharing.

For these positions our clients require people with a sound knowledge of commercial computing and COBOL. You will have the opportunity to gain expertise in Data base Management Techniques, Distributed Systems and Operating Systems. Successful candidates would possibly be analysts who have progressed from a programming background, in either a mini or mainframe environment.

These Support Analysts will be available to offer technical support to both sales force, and the Company's extensive customer base.

These vacancies are at the Company's Headquarters near Wokingham.

STAFF ENGINEERS

Base salary £4,500 p.a.-£5,000 p.a. plus profit sharing.

Young Junior Programmers or University Graduates with an interest in sales are offered a 'once in a lifetime' opportunity to gain valuable training and experience. Initially you will be involved in demonstrating kit to customers, benchmarks, dealing with technical queries, and generally providing support internally to the sales force.

These vacancies are based in Manchester or the Company's Headquarters near Wokingham.

Within 6-12 months you will have the chance of joining a highly professional sales team.

The company offers above average conditions of employment, including profit sharing, non-contributory pension scheme, subsidised medical insurance, and relocation expenses.

Initial interviews to be held in London, Birmingham and Manchester.

If you are interested in working in tomorrow's world, and have, preferably, a Degree which has been applied to computing:

CONTACT: DALE HADLEY — **On 021-236 3781** — **REF. NO. CW/11/6**

SPECIALIST COMPUTER RECRUITMENT LTD.
BIRMINGHAM 021-236 3781 FREEPOST
Freepost, Equity and Law House, 35-37 Great Charles Street Queensway, Birmingham B3 2BR.
MANCHESTER 061-833 0676 FREEPOST
Freepost, Corn Exchange Buildings, Corporation Street, Manchester M4 8BD.
LONDON 01-935 0671 FREEPOST 6
Freepost 6, 102, Blandford Street, London W1E 1JZ.

SCR

Computing Services Association

datascene

PROGRAMMERS:
If you can get on with us, you can get on with anybody

If you're a middleweight Programmer with about 1 to 3 years' experience, you're probably wondering where your career goes from here.

Ring us. Because once we know who you are and what you can do, we can offer you a tailor-made job. A job that offers real career prospects.

All we ask is that you should welcome the challenge of working REAL TIME, BATCH, DATABASE or COMMUNICATIONS systems. Emphasis is on IBM/ICL, but any hardware experience would be acceptable. This, plus experience of COBOL, PL1 or RPG II will guarantee a first-class move upwards. Our clients include Software houses, consultancy users, retailers, bankers and insurance companies.

Salaries range up to £5,500, but should not form a barrier to the right people.

FOR FURTHER DETAILS CONTACT US NOW.

Datascene Limited **01-439 7871**
Sceptre House 24-hour answering service
169-173 Regent Street, London W1R 7FB

datascene

JUNIOR/SENIOR OPS SHIFT LEADERS OPS MANAGERS
IT COSTS YOU NOTHING TO USE US. IT COULD COST YOU A CAREER IF YOU DON'T

Because we've got some of the best jobs around. Jobs that offer great salaries, benefits, conditions and prospects

We match people to jobs with great care. Once you're in, apart from the occasional letter of thanks, we don't expect to hear from you again. For a long, long time.

We have vacancies for Ops with IBM DOS/VS and ICL GEORGE experience, as well as Ops for HONEYWELL, UNIVAC, BURROUGHS, NCR and PDP. In London, or locally. We've listed just a few of them below. If you don't see one to suit you, don't worry. Ring us anyway, and we'll tell you what else we've got.

FOR FURTHER DETAILS CONTACT US NOW.

Datascene Limited **01-439 7871**
Sceptre House 24-hour answering service
169-173 Regent Street, London W1R 7FB

datascene

SYSTEMS ANALYSTS
Up to £6000
Software House—City

We're looking for Systems Analysts eager to advance their careers in this City-based Software house

The Company concerned operates ICL 1900 series machines, running under GEORGE II+

They need people with at least one years' allied experience on medium & large ICL/IBM systems

A Programming background, although not essential, would be an advantage.

This is just one of the jobs we have available for Analysts. If you're an Analyst looking for real career progression in the right areas at the right money, call us NOW!

FOR FURTHER DETAILS CONTACT US NOW.

Datascene Limited **01-439 7871**
Sceptre House 24-hour answering service
169-173 Regent Street, London W1R 7FB

datascene

FORTRAN PROGRAMMERS
Up to £7000
London and Home Counties

If you're experienced on mainframe or minis, we have exceptional opportunities for Fortran Programmers with a background in any of the following:

TYPESETTING	ENGINEERING
GRAPHICS	PETROCHEMICALS
OPS. RESEARCH	FINANCE

Jobs range from consultancy users to Software houses. And each position is tailored for you.

FOR FURTHER DETAILS CONTACT US NOW.

Datascene Limited **01-439 7871**
Sceptre House 24-hour answering service
169-173 Regent Street, London W1R 7FB

datascene

JUNIOR/SENIOR OPS SHIFT LEADERS
OPS MANAGERS
HERE'S A FEW OF OUR JOBS FOR YOU!

ICL	Any	Ops Manager	3 yrs	£6000
ICL	GII+	D/C Supervisor	2½ yrs	£5250
Burroughs	MCPV	Supervisor	3 yrs	£5000
IBM	DOS	Ops Supervisor	2½ yrs	£5000
Burroughs	MCPV	C. London Operator	1½ yrs	£4000
IBM	DOS	C. London Shift Leader	2 yrs	£4500+
IBM	DOS	C. London Snr Op	1½ yrs	£4000
IBM	OS	C. London Operator	1 yr+	£4100+
ICL	GII	C. London Operator	1 yr+	£4100
Univac	Exec. 8	S. London Snr Op	1½ yrs	£4000
Honeywell	Any	S. London Operator	6 mths	£3300
NCR	B3	N.W. London Operator	6 mths	£3400
NCR	Any	City (No shifts) Op	6 mths	£3500

FOR FURTHER DETAILS CONTACT US NOW.

Datascene Limited **01-439 7871**
Sceptre House 24-hour answering service
169-173 Regent Street, London W1R 7FB

datascene

MINI-PROGRAMMERS
Communications — City
up to £6000

If you're an experienced Mini Programmer with knowledge of BASIC+ and RSTS gained on PDP 11, you're needed now for a communications company heavily involved with the media. It's a unique and stimulating environment offering, among other things, total job satisfaction

We also need Mini Programmers with a knowledge of ASSEMBLER, FORTRAN and CORAL 66 gained on SINGER 1500, KIENZLE and PDP.

We have vacancies for you that offer salaries ranging from at least £3 500 to £5,750. They're mainly with software houses involved in businesses from Banking to Retailing. Whichever job you choose, you can be sure that it offers solid career potential — especially as the job scene is looking very healthy. Get your slice of the action by ringing us TODAY.

FOR FURTHER DETAILS CONTACT US NOW.

Datascene Limited **01-439 7871**
Sceptre House 24-hour answering service
169-173 Regent Street, London W1R 7FB

£5.5K BUSINESS ANALYST London
A commercial background in O & M, O/R or Work Study with DP experience is the requirement. Based in EC district; duties involve teamwork and individual efforts.

£5.7K SYSTEMS ANALYSTS Essex
Programming background not essential but some COBOL useful. Usual commercial/financial applications plus development of manufacturing and production techniques.

£4.5K ANALYST/PROGRAMMER London SW
Systems training available to programmers with 2 years experience. Applications run on modern mini. Duties include whole operation from investigation to implementation. Flexitime and 5 weeks holiday.

169 Finchley Road, London NW3 6HP

COMPUTECH 01-794 0202

EXCESS

Computer Operator

TIRED OF COMMUTING?
BORED WITH YOUR SURROUNDINGS?

If your answer to these questions is 'yes' take a look at what Excess can offer . . . . you may find you are in for a pleasant change.

Salary circa £3,600 including shift allowance

plus:

- Modern offices in delightful surroundings
- Non-contributory pension fund and life assurance
- Luncheon vouchers and subsidised canteen
- Mortgage subsidy after a qualifying period of service
- Excellent sports and social facilities where you can meet lots of friendly new people

We are operating an IBM 370/138 and presently developing teleprocessing and data base systems. We need someone with at least six months' experience gained on IBM equipment with knowledge of DOS VS and GRASP/POWER willing to work on a shift basis.

If you are interested please write or telephone:
Irene Northcott, Personnel Officer
Excess Insurance Group
The Warren Warren Road Worthing
West Sussex BN14 9QD
Telephone Worthing (0903) 39933

OCC

16 Bedford Row
London WC1R 4EB
01-242 9356
Telex 21120

Specialists since 1971 in UK and international computer appointments

occ computer personnel limited

Production Planning & Control Systems

A leading British management consultancy markets and implements a comprehensive products and inventory planning and control package through its computer and telecommunication subsidiary company. The package has been successfully implemented on IBM System 3, ICL 2903 and on larger machines in more than 100 organisations world wide.
Increasing demand facilities products now leads to the need for two additional Systems Consultants, one based in London but travelling intermittently overseas, and the other implementing systems at client sites in the U.K.

International Management Consultancy

Excellent career prospects and training in professional environment

Systems Consultant
£6,500-£7,500
London base with overseas travel

The Systems Consultant will join a Head Office team developing and maintaining the software and documentation; providing expert assistance to other consultants; installing the package, particularly abroad; providing technical support for sales proposals. Candidates will probably be 25-30 with over five years' DP experience and will be thoroughly competent in Cobol. Experience of RPG 2 would be an advantage. Experience of implementing manufacturing systems and of BOMP or equivalent systems is required. Good communications skills and a willingness to travel are needed, and a knowledge of French or German would be an added bonus.
Ref: 730A/CW.

Systems Consultant
£6,000-£7,000
Based Midlands or South with travel in these areas

The Consultant will become part of the team installing the package on clients' sites in the Midlands and the South East and could be responsible for three or four sites at any one time. The work can involve manufacturing system design and programming; supervising clients' programmers and designers; training, sales support andback development work. Candidates should be thoroughly competent analyst/programmers (Cobol and RPG 2 preferred), experienced in the design and implementation of manufacturing systems including BOMP (or equivalent). They must be able to supervise small teams and communicate well with technical and non technical client staff. Evidence of previous successful implementation experience is vital. (S3; 2903, etc.).
Ref. 730B/CW.

These are excellent career opportunities with a highly professional and successful Management Consultancy. Extensive training in consultancy techniques and on all aspects of the package will be given to new employees. Subsequent training of two weeks per annum is provided on a variety of subjects.

To apply for these positions, or for further information, please write or phone asking for Neville John. Day—01-242 9356; Evenings or weekends—Farnborough (Kent) 52017. If you are interested but are not sure of the relevance of your experience, please ring for an informal discussion.

Members of Computing Services Association

Systems and Programming Staff

£5000 to £8000 PLUS
- Profit Share
- Free Life Assurance & Pension Plan
- BUPA family cover
- Holidays 21 to 26 days

CMG (City of London) Ltd. is the specialist subsidiary of the CMG Group—one of the leading European computer service organisations with a turnover currently in excess of £8M p.a.

THE PEOPLE we are looking for will be currently earning £3,000-£6,000 p.a., have had 3-5 years experience in a systems and programming environment and be looking for the opportunity to develop their basic experience gained to date in one or more of the following areas:

- Insurance • Banking • Investment
- Telecommunications • Database
- Project Management

Please telephone for an application form between 0830 and 1800 or write to:
Colin Smith
CMG (City of London) Limited
Eastgate 73 Leman Street
London E1 8EY 01-481 3881

CMG
London · Amsterdam · Frankfurt
Rotterdam · Brussels · Glasgow

COUNTY DURHAM
PROGRAMMING OPPORTUNITIES

The following vacancies have occurred because of a large development in our Client's national and international data processing plans which include teleprocessing facilities utilising CICS.

Developing systems for operation at various UK and overseas locations, these vacancies will provide all the job satisfaction and challenge you could wish for. Specifically, the vacancies are as follows:

SENIOR PROGRAMMER — £4,350

For this position, our Clients are seeking somebody with:

- ★ 3-4 years' COBOL experience
- ★ Practical ASSEMBLER experience
- ★ A knowledge of DOS
- ★ A desire to be involved in systems programming.

PROGRAMMERS — £3,850

For this position, the requirement is for an applicant with 2-3 years' COBOL experience, preferably gained in an IBM environment.

The Company, who are a major International Manufacturing Corporation, offer first-class conditions of employment including: Company pension, excellent sick-pay scheme, and assistance with relocation expenses where applicable.

CONTACT: TONY DEANE on:
061-833 0676 Ref. CW/11/8

SPECIALIST COMPUTER RECRUITMENT LTD.

BIRMINGHAM 021-236 3781 FREEPOST
Freepost, Equity and Law House, 35-37 Great Charles Street Queensway, Birmingham B3 2BR

MANCHESTER 061-833 0676 FREEPOST
Freepost, Corn Exchange Buildings, Corporation Street, Manchester M4 8BD

LONDON 01-935 0671 FREEPOST 6
Freepost 6, 102, Blandford Street, London W1E 1JZ

SCR

Donoghue

We are a leading Midlands Computer Services Organisation offering the following career opportunities at our new Computer Centre in Greater Manchester.

TRAINEE SYSTEMS ANALYSTS
£3250-£4750 (plus profits)

DO YOU—have a solid record of achievement in commercial applications programming?

HAVE YOU—the personality, energy and ambition to become an effective analyst?

ARE YOU—attracted to the prospect of meeting new challenges in a wide variety of different companies?

Then write with full details of your career and earnings to: **F. R. Nugent, Data Processing Manager,**

DONOGHUE INFORMATION SYSTEMS LTD.
CROMWELL ROAD, BREDBURY
STOCKPORT SK6 2RF

PROGRAMMER
£3542-£5292
+ 5% salary supplement

The Central Electricity Generating Board is looking for a suitable person to join the staff in the Computer Branch of the North Western Region, Cheadle Heath, Stockport. The Branch provides a service to Engineering and Administrative Departments of the Region. Development work is organised by teams on a project basis.

The successful candidate will be one of a pool of programmers who are allocated to sections of the Computer Branch on a planned rota basis in order to gain experience in the various disciplines involved.

Applicants should have at least 'A' level mathematics and two years' experience in using either high or low level languages. Experience in programming for communications devices would be an advantage.

The central Regional computer working under George 3 operating system is a 192K ICL 1903T with discs, magnetic tapes, line printers, document readers and graph plotter. Terminals are supported by this configuration at power stations and Regional H.Q. departments. An ICL 7905 is linked to the 1903T and the IBM 370 at the Board's H.Q. and supports VDU and printing facilities.

Applications in writing, from either sex, giving details of age, experience, qualifications, etc., to the Personnel Manager, C.E.G.B., Europa House, Bird Hall Lane, Cheadle Heath, Stockport, Cheshire, SK3 0XA, to arrive no later than November 18, 1977. Please quote vacancy number 383/CW.

THE UNIVERSITY OF MANCHESTER INSTITUTE OF SCIENCE AND TECHNOLOGY

SPECIAL RESEARCH ASSISTANT

Graduate or equivalent, male or female, required to assist in the software/electronic aspects of the design of an error correction system for co-ordinate measuring machines and large machine tools. A knowledge of assembly language programming on mini or micro computers is desirable. Alternatively, an electronic engineer (digital) seeking an introduction to microprocessor techniques would be favourably considered. The successful candidate will have the opportunity to submit the work for a higher degree.

The project is sponsored by SRC and is initially for two years. The starting salary will be in the range of £2904-£4190 per annum.

Application forms are obtainable from the Registrar, UMIST, P.O. Box 88, Manchester, M60 1QD, by quoting reference ME/95/RC.

GREATER MANCHESTER COUNCIL
COUNTY TREASURY

Greater Manchester Council is undertaking a program of computer development using both teleprocessing and database techniques. Two people are required to join the team currently working on financial systems.

SENIOR DEVELOPMENT OFFICER
£4239/£4692 + £520 p.a. supplements

To take responsibility for specific applications within the broad area of integrated financial systems. In addition to systems and programming activities, involvement in the management of the team (which is headed by a Group Leader) will form part of the job.

Applicants must have a number of years' programming in a commercial high level language and experience of Systems Analysis.

DEVELOPMENT OFFICER
£3366/£4098 + £498 p.a. supplements

The person appointed will be a member of a project team and will undertake both programming and systems work on a number of applications. Applicants should have experience of programming in a high level commercial language, preferably COBOL.

Generous conditions of service include removal, legal fees, etc. expenses payable up to £750; lodging allowance; flexible working hours.

Applications by letter giving all relevant details to the County Personnel Officer, P.O. Box 430, County Hall, Piccadilly Gardens, Manchester M60 3HP by November 21st, 1977.

MOUNCEY & PARTNERS LIMITED

York House, Empire Way
Wembley, Middlesex HA9 0PA

These job descriptions are intended only as a brief outline of the general experience we require which will, preferably, have been on large mainframes in Financial, Commercial, Government or Manufacturing environments.

SENIOR CONSULTANTS

Major Project Management, Feasibility Studies Systems investigations, Computer Audits, etc.

CONSULTANTS

Project Management responsibility, Systems Analysis, detailed design.

TECHNICAL CONSULTANTS

Technical team management experience, project responsibility, detailed system design.

ANALYST/PROGRAMMERS

Similar experience as below plus some detailed systems spec. writing, team/person management experience, etc.

SENIOR PROGRAMMERS

With experience of machines identified below and some experience or potential in team leading, program spec. writing, etc.

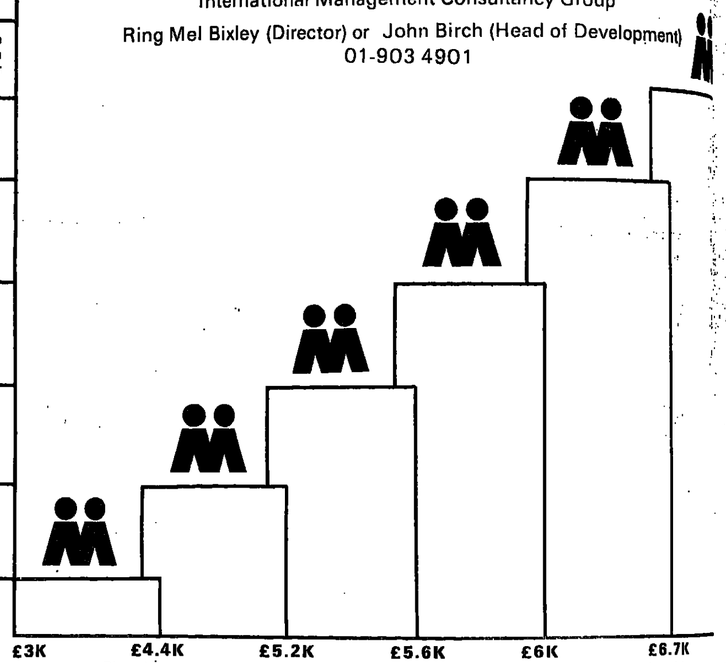
PROGRAMMERS

With programming experience of COBOL or ASSEMBLER on any of the following machines.
IBM 360/370's, ICL 1900, 2900's, ICL System 4's, Honeywell 2000 or 66 series, NCR Century Range and Univac 1100 or 9030s.

YOUR CHANCE TO STEP ON AND STEP UP!

Mouncey's are part of the Knight Wegenstein / Lester B. Knight International Management Consultancy Group

Ring Mel Bixley (Director) or John Birch (Head of Development)
01-903 4901



Plus Annual Profit Sharing Bonus Scheme, Whole Family BUPA Membership, Non-Contributory Pension Scheme, Life Insurance

TECHNICAL SYSTEMS GROUP — FORTRAN PROGRAMMER

Systemshare operate a U.K. Timesharing Service based on Honeywell GE 400 and Series 6000 Computers.

The Technical Systems Group develops and maintains an expanding range of applications for a wide variety of technical users and enjoys an excellent reputation for the quality of its customer support service.

An additional programmer is required for our Edinburgh office. Applications are invited from candidates who must have a minimum of two years' experience in the FORTRAN environment; be capable of working under pressure and have a genuine interest in the involvement and management of many different technical applications.

Write for application form (quoting Ref. A.77.36) to:

Personnel Manager
Systemshare Limited
East Pilton
Edinburgh EH5 2XT

(A Member of the Reyrolle Parsons Group)

SYSTEMSHARE LIMITED

BASSETLAW DISTRICT COUNCIL
COMPUTER PROGRAMMER

Salary Grade — A.P.3/4 (£3,395-£4,214)

Applications are invited for the above post in the Computer Section of the Chief Executive's Department based at Highfield House, Carlton Road, Worksop.

An ICL RJE 7020 data communications equipment linked to a 1904S at County Hall, Nottingham, is installed.

Candidates for the post must have at least 12 months' programming experience. Knowledge of communications, direct access and George 3 operations will be advantageous. A proportion of the duties will be devoted to maintaining existing and introducing new systems in conjunction with other Nottinghamshire District Councils.

Application forms can be obtained from the Personnel Office, Central Depot, Hundred Acre Lane, Carlton Forest, Worksop, S81 0TS, telephone No. 5531, extension 258, and should be returned by Wednesday, November 23rd, 1977.

COMPUTING ASSIGNMENTS UK AND OVERSEAS

PRODUCT MANAGER Digital Solid State Memories.
PRODUCT MANAGER Linear Integrated Circuits.
These two posts carry full responsibility for profit and loss with the fastest growing European Electronic Components Distributor. Applicants are expected to have good academic background with a well developed and mature understanding of distribution together with negotiating skills suited to dealing in the computing, industrial and professional military markets.
Location. Home Counties. Plus frequent travel to U.S.A.
Salary: Basic £8,000 plus performance bonus based on profits. Earnings should exceed £10,000.
Benefits: Company Car + Pension Plan. MS 11/08

COMPUTER SYSTEMS DESIGN ENGINEER
To design and implement the application of computers in the process industries. Applicants are likely to have experience of electrical and instrumentation control engineering in the steel, chemical and petro-chemical industries and be totally conversant with hardware and software necessary to commission and install complete working systems.
Location: North East England.
Salary. £8,000
Benefits: Company car or substantial allowance. MS 11/09

COMMUNICATIONS FIELD SERVICE ENGINEERS IRAN
Installation, commissioning and maintenance of multi-station telex switching network in Iran. Must have good academic qualifications in telecommunications and 5 years minimum experience in field working with advanced message switching systems.
Locations: Teheran and Shiraz.
Salary: U.K. Basic £10,000 + generous allowances. MS 11/10

SALES ENGINEER
Major European Software House.
Experienced in selling services in the hardware and software sectors of the computing industry. Applicants with academic and working knowledge of solid state memories will be suited to this post.
Location: Central London.
Salary: £5,000 plus commission, forecast annual earnings £10,000. Company car. MS 11/11

Phone or write to B. Selway

Mella Software (Agy) **Tel: 01-387-1603**
334 Euston Road, London NW1 3BD

Hinton

We are a public company involved in [illegible] North East of England operating over 50 [illegible] area.

We have recently upgraded our computer to [illegible] 300KD with 128m characters of LAK disc [illegible] other peripherals.

Now we are embarking on extensive redesign [illegible] our systems and have vacancies for the [illegible] professional staff.

SYSTEMS ANALYST

£4,500-£6,000 per annum
With a sound commercial and programming [illegible] ground, must be able to communicate with [illegible] management

PROGRAMMERS

Attractive salaries will be offered to the right [illegible] who should have a good grasp of programming [illegible] niques and at least one year's COBOL experience.

Multi-programming experience would be helpful but [illegible] essential.

Bonus schemes are in operation.

Applications, giving details of career to date [illegible] available for personnel interview to:

Personnel Manager
AMOS HINTON & SONS LIMITED
P.O. Box 24, Master Road
THORNABY, Cleveland

West Yorkshire

ANALYSTS, PROGRAMMERS AND TEAM LEADERS

Required for expanding bureau and [illegible] of Burroughs B700/B800 Cobol and [illegible] languages desirable.

Contact: Gerry Yates, Managing Director, [illegible] Company Ltd., Bull Green House, [illegible] Tel. Halifax (0422) 65099.

SOFTWARE DESIGN AND DEVELOPMENT

The use of mini-computers and microprocessors is spreading rapidly, generating exciting career opportunities for software people. One of the fastest growing application areas is in the real-time control of complex automated systems for various industrial processes.

Our client is a British company, long established internationally in the forefront of its chosen field. Their organisation embodies a Software Design Department, which undertakes the design and development of standard systems software, language facilities and compilers, as well as advanced application packages. These are used by application groups to build custom automation systems.

Increasing new product development and business expansion have generated interesting career vacancies.

Located in very congenial conditions in the Northern Home Counties, these vacancies represent an excellent opportunity for career development in one of the most exciting and fast developing sectors of computing today.

Terms of employment include an excellent Superannuation Scheme, 4 weeks' holiday, free life assurance, subsidised restaurant and sports/social facilities.

Where applicable, relocation assistance is available.

TEAM LEADER - CORAL £NEG

A Senior Software Designer, with 5/6 years' mini-midi experience mainly on compiler development (especially Coral, Fortran, Algol, Pascal, RTL2), is required to lead a team responsible for the continuing development of a CORAL compiler, including the design of major enhancements and the design and implementation of supporting software.

RW44/1

TEAM LEADER - Interactive Languages & Support £NEG

Responsible for the detailed design of interactive language systems, assemblers, linkers, etc., this Team Leader will probably have 4 years' experience on "systems" software, including interactive languages. He/she will currently be functioning as a team leader and will also have knowledge of compilers or real-time operating systems, or other relevant areas.

RW 44/2

These are primarily technical roles, but team leading ability is also essential.

SENIOR SOFTWARE DESIGNER - CORAL Up to £7500 p.a.

Reporting to the Team Leader — CORAL, the Senior Software Designer will be responsible for detailed design and implementation of sections of the CORAL compiler.

Candidates will have some 3 years' relevant experience, of which some 50% should have been on minis.

RW 44/3

SOFTWARE DESIGNER Up to £5500 p.a.

A man or woman with two or more years' experience is required to work in the real-time operating systems area, or perhaps detailed level compiler work.

The important qualifications for this job are application and the ability to display a creative flair to software development work. Knowledge of operating systems or compilers would be advantageous, but evidence of creativity and mental capability is more important.

RW 44/4

SOFTWARE DESIGNERS - APPLICATIONS AND SYSTEMS SOFTWARE Up to £5500 p.a.

Possibly graded as Senior Software Designers, these men/women will join a team with the responsibility to add new application packages and operating systems and language facilities to the company's established product range.

Candidates should have 2-4 years' experience, ideally gained in a process control environment, either as a member of a custom application group, or as part of a design group. Knowledge of at least two of the following must be evident:

Process Control
Communications
Real Time Operating Systems
Language Processors
Support Systems

RW 44/5

The above vacancies are all first-class opportunities to exercise your software skills to the full. You will be working with modern computers—Digital PDP/11 range—and utilising them in a state-of-the-art, real-time process control environment. The company's systems are in use throughout the world, controlling a wide variety of industrial processes, such as steelmaking and chemical plant, and the range of applications will undoubtedly be spread even further. The environment is thus interesting and stimulating and the work demanding and fulfilling.

The company places great store by its people, who constitute its principal asset. We would, therefore, be interested in hearing from individuals who have experience in the field and have a contribution to make, even though they need not exactly fit the above job descriptions.

You are invited to telephone Tony Baker 01-499 4501 to discuss these opportunities.

hutchinson-scoggins recruitment
10 Dover Street, London W1X 3PH Telephone 01-499 4501

HOLLAND

Our client, a leading Dutch Bank, will be conducting interviews in the UK on
17th & 18th NOVEMBER
They require experienced staff to fill the following vacancies:

THREE PROGRAMMERS
SENIOR PROGRAMMER
SYSTEMS ANALYST

The salary range is very competitive and ranges from:

40,000-50,000 FLS BASIC + FRINGE BENEFITS

Have you experience in the following areas:
PL1
IMS
IPT
Together with the abilities to command the respect of fellow professionals

Then please apply without delay to: Gordon Cairns, John Goldsmith Computer Services Ltd., 15 Buckingham Palace Road, London SW1
Telephone: Office 01-828 5356 Home 01-653 4227
24 hour answering service Ref. 990

Computing Services Association

WE ARE ALWAYS INTERESTED IN HELPING *YOU* WITH YOUR CAREER
John Goldsmith Computer Services Ltd., 15, Buckingham Palace Road, London, S.W.1.
Tel: 01-828 5356–24 hour answering service.

JOHN GOLDSMITH COMPUTER SERVICES LTD

2 key Customer Support Specialists - Australia

A$14–20,000

The continued growth of ICL Australia provides opportunities for experienced computer professionals. In particular, the Sydney sales region now requires two key people to provide specialised support to a growing customer base. The appointments are in:

Production Control
This position provides specialist support to customers with production control requirements. The work involves NIMMS and OMAC, and experience is required in NIMMS. You will provide sales support to customers moving to 2900 in the medium term who will then wish to implement 2900 production control software.

Operating Systems
The requirement here is to provide detailed support for operating systems with particular emphasis on George 3. You will be supporting the sales force selling 2900 DME and VME. To be successful, you should have had several years' experience with George 3.

These positions are permanent appointments. Competitive salaries are offered in the range A$14–20,000 according to your experience, and relocation costs will be paid for you and your family.
For further information please contact Carole Hudson, ICL, Bridge House North, Putney, London SW6; telephone 01-788 7272 extension 2047. Please quote reference CW 1578.

International Computers
think computers–think ICL
ICL

A CAREER WITH
ALEX. LAWRIE FACTORS

PROGRAMMER

Company We are a leading British Factoring Company with an annual turnover currently approaching £100 million, specialising in providing finance for commerce and industry

Equipment I.C.L. 1901T with 36K, EDS 60s, Mag. tapes and VTs.

Applicant A COBOL programmer is required to work with a small team in a financial environment. The salary will depend upon experience and the post carries excellent fringe benefits.

Interested? Please contact:
Mr. M. J. Personage
Personnel and Training Manager
Alex. Lawrie Factors Ltd.
Beaumont House, Beaumont Road
Banbury, Oxon OX16 7RN
Telephone: Banbury (0295) 4491

SOUTH WESTERN
Regional Health Authority

Computer Programmer

Salary Scale: £3534-£4344 p.a.
(plus Phase I and II supplements)

Experienced programmer required immediately with good COBOL experience and preferably familiar with ICL/Honeywell products.

The Computer Department is expanding into the communications field; present installation: ICL 2903 for TP work; also Honeywell 2060, due to be replaced with ICL 2960 in 1979. The work commitment involves developing financial and medical systems for the new equipment and the current batch systems.

Application forms and job descriptions obtainable from the Regional Personnel Officer, Establishment Section, U.T.F. House, 26 King Square, Bristol BS2 8HY.

Closing date: 23rd November, 1977.

£4,000 to £14,000

Not sometime in the future but right now. Marcol are one of Europes leading computer service organisations, and because of our size and wide range of interests, we can offer exciting opportunities plus a variety of new experiences you would be unlikely to get anywhere else:

New machines
New languages
Advanced technology
Diverse interests
(telecommunications, aerospace and petrochemicals)
Assignments overseas

Make it with Marcol

Couple this with real opportunities for advancement and the top salaries we are prepared to offer and you'll realise you'll "make it with Marcol" sooner and in more ways than one.
Contact: Derek Ashley, 01-402 9355,
Marcol Computer Services, 60 Queens Gardens, London W2.

MARCOL
Dynamic Systems for tomorrow's needs
An associate of The Norwich Union Group.
NORWICH UNION

COBOL PROG.
GLOUCESTERSHIRE
c £4,000 p.a. + benefits
Phone 01-439 6481
(24 hours)
EFFECTIA GRAVIS
Personnel Consultants

CAPITAL APPTS.
34, Percy St. London, W.1.
FORTRAN
Experienced and Graduate Trainee Programmers
urgently required for industrial and scientific development
£7,000
ALL AREAS
Phone for free list of vacancies
637 5551 day; 445 0468 eve.

SHIFT LEADER
CITY
DOS POWER CICS
To £4,700
Phone 01-439 6481
(24 hours)
EFFECTIA GRAVIS
Personnel Consultants

ARE YOU INTERESTED IN ORIGINAL SOFTWARE DEVELOPMENT?

A series of development projects on **COMPILERS, DBMS** and **TRANSACTION PROCESSING SYSTEMS,** are currently being undertaken by the software development group of this major manufacturer of mini computers. Based just outside London, this small group has total company-wide design and development responsibility for these projects.
If you are young (less than 30), intelligent, and enjoy creative programming (or even are bored with applications work), then these positions offer an unusually stimulating environment. The working surroundings are especially pleasant. Facilities include three systems dedicated to on-line program development. You will probably have some programming experience in a low-level language, real-time environment; you might well have a Computer Sciences academic background.

Above all, you will be attracted by the opportunity to create, develop and implement *your own* ideas in these important areas of software technology. Normal big company benefits include salaries in the range:

£4000+£6500

RW 42/3

A NEW SALES CHALLENGE

★ GROWTH MARKET
★ HIGH EARNINGS POTENTIAL
★ CAREER DEVELOPMENT OPPORTUNITIES

Our clients are leaders in the field of data and message communications — one of the fastest growing markets in the world today. They have achieved their present eminence through product excellence and sheer professionalism.

There is now a ground-floor opportunity for a small number of systems salesmen to generate new business and develop the existing customer base. For those seeking new fields to conquer, this represents an opportunity to participate in the growth of a dynamic, but well established young company.

We are interested in hearing from you if you have:
— A strong personality enforced by determination and professionalism
— A real, practical interest in modern business
— A hunger for success

You will be well supported and well paid by high basic salaries and commission based on realistic targets. Company cars are also provided.

Potential earnings are unlimited, and, on the average, salesmen can expect to earn somewhat in excess of

£10,000 p.a.

RW 45/1

hutchinson-scoggins recruitment

10 Dover Street London W1X 3PH Telephone 01-499 4501

VARIETY IS THE CHALLENGE OF THE JOB!

MIDLANDS **SALARIES TO £6,500 p.a.**

Our clients, the computer centre for a major international group of companies, in the engineering industry, seek computer professionals to join their data processing department developing systems for approximately twenty companies throughout the U.K. The well managed installation comprises of a large IBM 370 series machine, supporting a comprehensive tele-processing network utilising "CICS".

Programmers
Salaries to £4,500

Our clients require a minimum of 12 months experience of PL/1. The successful candidates will be working in a project orientated environment, where the considerable number of companies supported, ensures continuous challenge. Excellent opportunities for promotion exist for suitably motivated people.

Analyst/Programmers/Systems Designers
Salaries to £5,500

For this position, our clients require a minimum of two years grounding in PL/1, combined with demonstrated experience of analysis or systems design. Successful applicants will receive formal systems training and will be initially involved with on-line order processing, production control and accountancy packages. Successful candidates may be expected to liaise at all levels within the group companies and work on a cost effective basis.

Analyst and Senior Analyst
Salaries to £6,500

Successful candidates should have a minimum of three years systems experience, gained in a commercial or manufacturing environment. They will be involved in proposals, development and budgeting of systems for member companies. Experience of high level meetings with financial and manufacturing line management would be a distinct advantage for these positions.

The site is located within daily travelling distance of Birmingham/Wolverhampton, and their close proximity to the motorway network enables easy access to rural Warwickshire, Worcestershire and Staffordshire. They offer large company benefits including pension and life assurance schemes, sports and social facilities (including squash courts), generous holiday entitlement and excellent relocation expenses where applicable.

For further details contact: ROD BEESON on 021-236 3781

REF. NO. CW/11/7

SPECIALIST COMPUTER RECRUITMENT LTD.
BIRMINGHAM 021-236 3781 FREEPOST
Freepost, Equity and Law House, 35-37 Great Charles Street Queensway, Birmingham B3 2BR
MANCHESTER 061-833 0676 FREEPOST
Freepost, Corn Exchange Buildings, Corporation Street, Manchester M4 3BD
LONDON 01-935 0671 FREEPOST 6
Freepost 6, 102, Blandford Street, London W1E 1JZ

SCR

Computing Services Association

Assembler Programmers Project Leaders

HOW GOOD ARE YOU?

6 Prizes of £20
6 Prizes of £10
Certificates of Merit for all correct entries

After execution of the following code:

```
PROGRAM   CSECT
          BALR    12,0
          USING   *,12
OTHER     LM      15,4 FULLWORD
          USING PROGRAM,15
          EX      1,MSGMVC
INSA      BCT     4,TEST
INSB      B       TESTB
FULLWORD  DC      A(OTHER)
          DC      A(17,L' MSG1,MSG1,18,2)
MSGMVC    MVC     MSG(1),0(2)
MSGL      DC      CL4' ABCDEFGH'
MSG       DC      CL4'IJKL'
          DROP    12
TESTB     CLI     MSG1,C' A'
TEST      LA      0,25(0)
TESTA     SH      3,FULLWORD+6
```

Q1 Has the instruction 'TESTB' been executed?
Q2 Which instructions, if any, have been altered (and how)?
Q3 Which are the contents of the field 'MSG'?
Q4 Which base register is used by the instruction 'INSA'?
Q5 Which base register is used by the instruction 'TESTA'?
Q6 What does register 0 contain?

A1_____
A2_____
A3_____
A4_____
A5_____
A6_____

Good Score? Drop in to check your answers at 184 New Kings Road, Fulham SW6, where you will also find out more about SDI and the career opportunities that are currently available. (Nearest Tube Station, Putney Bridge).

If unable to call please mail your answers along with your name, address, home and business telephone numbers to:—

SDI, 184 New Kings Road, London SW6.

For more information about career opportunities, phone Ian Marr at 01-736 1382.

RULES

1. Personal entries may be delivered personally to SDI at any time before 6.30pm on Friday, 11th November 1977.
2. Postal entries may be postmarked any time before 12 noon on Monday, 14th November 1977.
3. Personal entry prizes will be drawn at SDI at 6.45pm on Friday, 11th November. Prizes will be awarded at 7pm. Prizes of £20 will be awarded for the first six correct entries opened.
4. Postal entry prizes will be drawn at 6.45pm on Tuesday, 15th November 1977. Prizes of £10 will be awarded for the first six correct entries opened.
5. A certificate of merit will be awarded for each correct entry received.

SDI

Sales Executives

Do you want a divorce?
Are you tired of your present company?
Does it really appreciate what you are trying to do for it?
Does it have a product you are proud of?
Is your work exciting?
If your answer is yes yes no no
It's time for a second marriage
Exciting things happen with Prime

In four short years we have built a worldwide company and launched three new series of super-powerful mini computers. We operate from five different offices in the UK and are busy opening three more. The odds are that wherever you live we are interested if you are good enough for us.

We only employ real professionals, and the present team is hand-picked to be the best in the industry. We want to expand our team but we won't compromise on quality.

We want experienced sales professionals who won't settle for a quiet cosy life working 9-5 and waiting for the boss to drop dead.

We want active, positive-thinking people who can really work on their own initiative. We'll work you until you drop, and we will reward you to the highest industry standards for doing it.

Prime is a challenge — an exciting challenge and really we are only just beginning.

Interested?

Ring 01-876 0040 and ask for Wendy or Sheila 9am to 5pm.

All we need is a three minute chat and your name and address. We will take it from there.

Why not call us today? (or write if you must)

PS. we will be at Compec too if you would like to take a look at us. Stand U79/U80

Prime Computer (UK) Ltd.,
The Coach House, 173 Sheen Lane, East Sheen, London SW14 8NA

PRIME

SYSTEMS ANALYST **K12,000**
OPERATIONS SUPERVISOR/INSTRUCTOR **K11,000**
ANALYST/PROGRAMMERS (2) **K10,000**
SYSTEMS PROGRAMMER **K10,000**
(CURRENT EXCHANGE RATE K1 = 70p)

Mazembe Tractor Company Ltd., the Caterpillar earthmoving equipment dealership in Zambia, has vacancies for the above staff.

The IBM computer currently in use is a 384K 370/135, running under DOS/VS/POWER. Already operational applications include on-line inventory control systems running under CICS and batch financial systems.

Additional staff are now required in order to implement computer systems in the other group companies as well as on-going development for Mazambe.

The Systems Analyst should have a minimum of 2 years' experience including design of on-line systems. The Operations Supervisor/Instructor will be required to devise and implement a training scheme for Zambians in the operations area. The Analyst/Programmers should have a minimum of 2 years' experience of PL/1 programming. An ability to devise a formal training course for Zambians would be an asset.

The Systems Programmer should have approximately one year's experience of DOS/VS and will be required to carry out some applications programming using CICS/VS.

All applicants must be in possession of a Degree and/or membership of a professional computer body.

The terms of employment will be on a mutually renewable 2-year contract and the Company will provide in addition to the basic salaries quoted above:

(a) 25% gratuity on all contract earnings
(b) Free furnished accommodation
(c) Return air fares for the applicant, and family (if any)
(d) Assistance with the applicant's children's education fees where appropriate
(e) Baggage/settling-in allowance

The D.P. Manager will be conducting interviews in London early in December and applications should in the first instance be addressed to:—

Mr. G. S. Peterken
P. H. Recruitment Limited
Excel House
42 Upper Berkeley Street
LONDON W1H 7PL

KENT COUNTY COUNCIL

Systems Analyst WITH VISION

We not only need a person capable of performing the routine tasks of good analysis effectively, we also need the ability to help our users and the ISD in installing computer based systems that have the potential to dynamically change the environment in which they work.

Kent County Council are fully aware of the contribution a good analyst can make to the effectiveness of the organisation. Our Users are paramount and we require a person who is not afraid to guide them into achieving improvements to the benefit of the people of Kent.

Attractive salary plus assistance with relocation expenses if necessary. Modern pleasant surroundings in an ideal part of the county.

If you feel that you can fill this position phone West Malling (0732) 844522 Extension 285, or write to the Development Manager, Kent County Council Computer Unit, The Air Station, West Malling, Kent, for an application form.

ELECTRONIC TEST ENGINEER
EC2 **c. £4000 p.a.**
depending on age and experience

The Exchange Telegraph Co. Ltd. have a vacancy for an Electronic Test Engineer at their Engineering District, London EC2. Responsible to the Technical Manager, Printers, duties will involve testing and repairing of printers and associated equipment and assisting in the development of special customer requirements, including documentation and drawings.

Candidates, aged 20+, must have an electronic engineering ONC/HNC/City & Guilds, and have had experience with servicing, repair and commissioning experience.

Company benefits include 4 weeks' holiday, pension schemes + LVs. Hours of work are 9 a.m. to 5 p.m. Friday.

For further details, please telephone Miss A. Redman on 01-353 1000 Ext. 2

1900 OP
GEORGE II
WEST LONDON
To £4,000 p.a. + bonus
Phone 01-439 6481 (24 hours)
EFFECTIA GRAVIS
Personnel Consultants

SYSTEMS PROG.
PLAN EXPERIENCE
WEST LONDON
To £6,500 p.a.
Phone 01-439 6481 (24 hours)
EFFECTIA GRAVIS
Personnel Consultants

Aberdeen Road West, Aberdeen AB9 2LU. Closing ... on 31st October, 1977

CURRENT SELECTION

Operators to Shift Leaders £2,000-£4,500 (incl.)

LONDON & HOME COUNTIES

We have many vacancies covering all types of machines and locations. Some firms will retrain from one manufacturer to another. Remember these positions are for shift working only. Hurry whilst stocks last.
CW 45/1 Patricia.

New Sales Support & Sales Opportunities — UK

A major international computer manufacturer is announcing in Europe an exciting proven range of small computers in the New Year. They therefore immediately require Branch Managers, Systems Analysts, Salesmen and Technical Support Personnel as well as a UK Training Officer. Previous experience should be with RPGII type computers or mini computers using commercial skills with a professional approach to problem solving. Personnel will have a marvellous opportunity to get in on the ground floor where salaries will be very competitive. Vacancies exist in W. LONDON, BIRMINGHAM, MANCHESTER and LEEDS. CW 45/2 Michael.

Successful Salesmen to £12K quota earnings

U K

We now have 12 different firms for both hardware and systems only companies who are anxious to meet successful salesmen in this industry. They just have previous relevant small systems experience (some VRCs will be considered). All firms have bonus schemes and cars or car allowance. Most positions in S.E. England, but three in Midlands.
CW45/3. Michael.

Systems Consultants £6,000-£9,500

CENTRAL LONDON

Seven large well-established consultancies wish to recruit systems people with all-round experience on third generation equipment and the right personality to deal with clients who require a first rate service. Technical communications consultants are also required where in-depth implementation experience of IBM or ICL T/P message switching networks, etc., are essential. Excellent fringe benefits and prospects.
CW45/4. Michael.

Mini Computer Programmers to £6,950

U K

Your experience is required now. A very large number of vacancies are registered where a knowledge of Assembler or communications experience is essential (VRC programmers would also be considered). Opportunities exist in S.W., N.W. or W. London, Surrey, Herts. and Manchester in this exciting and rewarding field. There has also been registered some overseas posts to people with five or more years in mini computers.
CW45/5. Michael.

Contract Programmers to £190 p.w.

U K

Immediate requirements for IBM RPG II & IBM COBOL under DOS or OS for C. London. PL/1, OS or CICS, PDP/11 or good IMS for various locations for three months plus. Also IBM vacancies in GERMANY, BELGIUM & HOLLAND. Ask for the Contracts Officer on 01-995 2236.
CW45/6. Michael.

PLEASE EITHER COMPLETE THE FORM ALONGSIDE OR TELEPHONE UCA FOR DETAILS OF THESE AND SIMILAR VACANCIES.

01-995 3883
CONTRACT STAFF
01-995 2236

UNIVERSAL COMPUTER ASSOCIATE RECRUITMENT CONSULTANTS

UCA LEADS THE WAY

Universal Computer Associates, established in 1969, has registered nearly 14,000 applicants in the D.P. industry and has subsequently filled vacancies within every type of organisation both in the UK and overseas.

If you are thinking of using a successful and friendly consultancy, whether it is for PERMANENT or CONTRACT vacancies, or for people to fill them, then UNIVERSAL COMPUTER ASSOCIATES ARE AT YOUR SERVICE.

Phone: 01-995 3883 or 01-958 6138 up to 10 p.m.

PROGRAMMERS, ANALYSTS, CONSULTANTS
YOUR CAREER IS VITAL —
LET US IMPROVE IT FOR YOU!

UCA Computer Services & Recruitment Consultants

UNIVERSAL COMPUTER ASSOCIATES
Data Express House
3 Prospect Place, Heathfield Terrace, Chiswick, W4, 01-995 3883

Name *(full)*	UCA No.:
Address	Telephone (home)
	(used discreetly) (work) Ext.
	Position required
Age Marital status	Salary required
Period of notice Children's ages	Areas required
Car owner/driver Foreign languages?	Willing to move? Within UK: Yes/No Overseas: Yes/No
Education — 'O'/'A' levels/degrees/other	Areas considered LONDON Yes/No
	Installation preferred
EDP courses	Join a progressive software house/Consultancy/Bureaux? Yes/No
	Interested in freelance work?

EMPLOYMENT RECORD

Dates & final salary (most recent first)	Employers (most recent first)	Computer & model	Programme languages & operating systems	Position, duties and applications undertaken and completed

EDP EXPERIENCE

Time period to nearest quarter year: Operating Programming Sales/other
Control procedures Systems Management Total in DP
Languages and operating systems you know well

Assess your experience: S = some A = adequate F = full (leave blank if not relevant) of the following

VRC/Word Processing Time-Sharing Database Design JCL Microprocessors
Drum Disk MICR/OCR VDU Data transmission Real time
Software development Scientific programming Production control Accountancy

HURRY POST NOW! "No stamp needed if you post to Universal Computer Associates" FREEPOST, London W4 3BR

EUROPE'S
LARGEST D.P. CONSULTANCY

Telephone today for immediate computer searches against all your outstanding requirements. E.M.S. offer the largest international data bank of candidates available world wide. For the most professional, sophisticated Recruitment Consultancy, E.M.S. stand supreme. E.M.S. get results! Select from thousands of candidates on our files. Telephone or write for us to resolve all those outstanding recruitment problems. All leading D.P. users use E.M.S. You probably do also —but now, please note the sophisticated additional services available.

E.M.S. CONSULTANTS LTD.
61 LOWER STREET
NEWCASTLE, STAFFS.
Telephone: 0782 623666

EMS GROUP SERVICES
* Low cost advertising facilities
* Pre-interviewing and shortlisting facilities
* Client interviewing facilities — Birmingham: Newcastle (Staffs.)
* Systems, Programming and Operations Hire Services
* Training/Conference Facilities (Birmingham Data Centre)
* Bureau & Time Sharing Services —All machines
* Turnkey Systems
* Software — Applications Packages
* Facilities Management

ICL New Range Programmers South West & West Country To £7000

We urgently need staff experienced on New Range for a number of large users, including manufacturers and bureaux. Vacancies offer permanent employment or contract status, according to individual experience. Work functions include working on new application systems, developing new operating software, compiler design, emulation systems and a wide variety of technical and scientific functions. Attractive fringe benefits also exist with leading clients for contract staff.
Consultant: Niall Bradley.

IBM Programmers Derby To £4500

Our clients require a number of additional Programmers and Programmer/Analysts to work in small project teams split, each team 50% development, 50% maintenance. Projects generally are commercial batch work, Payroll, Accounts, Sales, Stores, etc. Language experience should be ASSEMBLER, COBOL or PL/1. Some on-line development is envisaged within the next 2 years.
Consultant: Selina Mills.

Sales Support Programmers & Analysts Edinburgh To £5500

Minimum 'A' Level qualifications will apply. Candidates will be car owners with current driving licences and show a good aptitude for client liaison. Duties will include feasibility studies, writing proposals on post sales consulting. Basically, you would advise and guide clients on new hardware ranges. Both Analysts and Programmers must have at least 2 years' COBOL or ALGOL programming experience.
Consultant: Selina Mills.

Business Analyst Staffs Analyst/Programmer Wilts £4000-£5500

Hardware preferefence will be for ICL COBOL in a manufacturing systems environment using on-line and RJE. The Analyst/Programmer will be required to investigate and design minor projects either alone, or as part of a project team. Some programming will also be required. The position would suit a Programmer with 2 years' experience wishing to move into Systems Analysis.
The Business Analyst will be responsible for all systems development within the Willenhall area, reporting to the Chief Systems Analyst at Swindon. Applications will be broad but related to Engineering/Manufacturing in content, and are likely to be on-line to the Swindon mainframe via an RJE terminal.
Consultant: Don Walklate.

Leading Vacancies Middlesex To £6500

Project Leaders, Senior Analysts, Analysts, Program Designers, Chief Programmers and Programmers.
Opportunities exist with a large group, substantially increasing their investment in modern, sophisticated hardware, for a wide range of experienced DP staff. Experience in the following areas is urgently required: Production Control, On-line/Real time Systems, Database development, general commercial Accounting and Sales Order Processing, down to COBOL programming. Opportunities not to be missed in the Middlesex area.
Consultant: Selina Mills/Carol Proudman.

IBM Analyst Manchester To £4800

Good commercial experience in an IBM environment is sought. Ideally applicants should have worked at least 2 years in a similar position. The group have an international clientele and supply engineering products to a large consumer market.
Consultant: Don Walklate.

IBM 370 PL/1 & Assembler South Midlands To £7000

Any experience of IMS would be especially welcomed. We have urgent, large-scale requirements for a leading industrial group about to embark upon a major systems development exercise. Experience of working in a manufacturing industry would be advantageous. Staff will be expected to work in large project teams, involving a tight schedule control. Opportunities also exist for travelling throughout the U.K. to other group sites if required during latter 1978. Attractive salaries will be paid to a wide range of applications and software support staff with 2 years' and more practical experience.
Consultant: Niall Bradley.

ICL 1900 COBOL Programmers West Country To £5000

A small Gloucestershire bureau has vacancies for additional Programmers to assist with developing client accounts. Candidates will be given appropriate applications training where necessary. Opportunities exist for both Junior and Senior staff working in a very popular location with good middle term career prospects.
Consultant: John Wood.

Systems Programmers, Systems Designers, Systems Engineers London To £5300

A large banking group have numerous vacancies for staff experienced in DOS/VS, ASSEMBLER or COBOL and possibly CICS. A minimum 2 years' IBM 370 experience is essential. Equally, relevant staff with experience of financial system or banking would be of special interest. Excellent working conditions are available at a convenient City location.
Consultant: Selina Mills.

Systems Analysts West Midlands To £4400

Preference will be for candidates educated to at least HND level. The main activities of systems development include investigation of existing systems and assessment of future requirements. Preparation of initial reports and agreements with users. Preparation of individual program specifications including test data. Systems testing and Parallel/Pilot running and compilation of time schedules which must be adhered to.
Consultant: John Wood.

IBM 370 PL/1 Analysts/ Programmers Lancashire To £7000

Any experience of IMS would be especially welcomed. We have urgent, large scale requirements for a leading industrial group about to embark upon a major systems development exercise. Experience of working in a manufacturing industry would be advantageous. Staff will be expected to work in large project teams, involving tight schedule controls. Opportunities also exist for travelling throughout the U.K. to other group sites if required during latter 1978. Attractive salaries will be paid to a wide range of applications and software support staff with 2 years' and more practical experience.
Consultant: Niall Bradley.

EMS Consultants Ltd
EMS Consultants Ltd
61-63 Lower Street
Newcastle-under-Lyme
Staffs ST5 2RS
Telephone 0782 623666
(10 lines)
Register NOW!

EMS CONSULTANTS LTD
61 LOWER STREET
NEWCASTLE-UNDER-LYME
STAFFORDSHIRE, ST5 2RS
Telex: 36636

Management Services & Computing Division
Telephone: 0782 623665/6/7/8
Employment Agency & Employment Business License No. M66
(C) Form Design EMS Copyright March 1977

For Office Use only
Company Ref. No.

SURNAME
Other Names
Address — Telephone Home / Bus. / Ext.
Post Code

Age	Date of Birth	Place of Birth	Nationality	Height	Weight

Married	Children	Car Owner	Driver	Nature of any Serious Illness

Position Required — Required Salary Range
Present Position — Salary

WHERE DO YOU WISH TO WORK

Within U.K.	Yes/No	Acceptable Areas	Abroad	Yes/No
Will you move	Yes/No		Europe	Yes/No
			Middle East	Yes/No

NUMBER OF YEARS EXPERIENCE

Operating	Programming	Systems Design	Systems Analysis	Management	Total

Available for Interviews
Available for Employment

DETAILS OF SECONDARY AND FURTHER EDUCATION

Schools	Date	Examinations Passed
College/University	Date	Examinations Passed

Business Courses with Dates

1. Present Employer — Town
Position — Date Joined

TYPE OF INSTALLATION

Commercial Manufacturing	Bureau Banking	Insurance Education	Scientific Engineering

HARDWARE	OPERATING SYSTEM	LANGUAGES

Software or Packages

On-Line R.J.E.	Real Time Tele Processing	Time Sharing Data Base	

APPLICATION AREAS YOU HAVE BEEN INVOLVED IN (Please Tick)

Cost Accounting	General Ledger	Manpower Planning	Personnel
Budgeting	Credit Control	Stock Control	Payroll
Forecasting	Order Processing	Production Control	O.R.
Corporate Planning	Marketing	Petrochemicals	Radar
Sales Ledger	Distribution	Linear Programming	Statistics
Purchase Ledger	Traffic Analysis	Simulation	

Projects Completed — Responsibilities

2. Previous Employer — Town
Position — Date Joined

TYPE OF INSTALLATION

Commercial Manufacturing	Bureau Banking	Insurance Education	Scientific Engineering

HARDWARE	OPERATING SYSTEM	LANGUAGES

Software or Packages

On Line R J E	Real Time Tele Processing	Time Sharing Data Base	

APPLICATION AREAS YOU HAVE BEEN INVOLVED IN

Cost Accounting	General Ledger	Manpower Planning	Personnel
Budgeting	Credit Control	Stock Control	Payroll
Forecasting	Order Processing	Production Control	O.R.
Corporate Planning	Marketing	Petrochemicals	Radar
Sales Ledger	Distribution	Linear Programming	Statistics
Purchase Ledger	Traffic Analysis	Simulation	

Projects Completed — Responsibilities

Reason for Seeking Change

Details of type of position wanted

Additional Information –
Please explain below, in an 8-10 line precis, your current duties and applications experience

FOREIGN LANGUAGES

Spoken	Written	Read

Please show the number of years experience of the following. Where your experience is not specified please use the blank spaces.

HARDWARE		OPERATING SYSTEM		LANGUAGES		PACKAGES/SOFTWARE	
IBM 360/370		DOS		COBOL		FILETAB	
ICL 1900		OS		FORTRAN		DRIVER	
ICL 2960/2970		MVT/MFT		ASSEMBLER		CICS	
ICL 2903		GEORGE 1		PLAN		IMS	
UNIVAC 1100		GEORGE 2		PL1		BOMP	
UNIVAC other		GEORGE 3		RPG 2		D BOMP	
BURROUGH 700/800		MCP		USERCODE		PERT	
BURROUGHS other		Exec 8		AUTOCODE		V SAM	
HONEYWELL 66		GCOS		EASYCODER		IDS/TDS	
HONEYWELL 6000		OS 2000/200		ALGOL		MICROFILMING	
HONEYWELL other		VMEB/VMEK		NEAT		TELEPROCESSING	
NCR		J Level		CORAL		DMS	
ICL System 4				DL1			
PDP							

3. Past Employer — Town
Position — Date Joined

TYPE OF INSTALLATION

Commercial Manufacturing	Bureau Banking	Insurance Education	Scientific Engineering

HARDWARE	OPERATING SYSTEM	LANGUAGES

Software or Packages

On-Line R.J.E.	Real Time Tele Processing	Time Sharing Data Base	

APPLICATION AREAS YOU HAVE BEEN INVOLVED IN

Cost Accounting	General Ledger	Manpower Planning	Personnel
Budgeting	Credit Control	Stock Control	Payroll
Forecasting	Order Processing	Production Control	O.R.
Corporate Planning	Marketing	Petrochemicals	Radar
Sales Ledger	Distribution	Linear Programming	Statistics
Purchase Ledger	Traffic Analysis	Simulation	

Projects Completed — Responsibilities

PLEASE CHECK THAT EACH SECTION HAS BEEN TICKED APPROPRIATELY

ADDITIONAL INFORMATION

General

Data Processing

Terminals

Software/Packages

Application Areas

Projects and Responsibilities

LONDON BOROUGH OF LEWISHAM

TOWN CLERK & CHIEF EXECUTIVE'S DEPARTMENT

In order to meet an increasing demand for Systems Development, a number of experienced analysts and programmers are required. Successful candidates will enjoy good working conditions and generous leave.

The computer configuration is based upon an IBM 370/135 with distributed Olivetti and Plessey processors capturing data for the main frame.

Senior Systems Analyst

(Ref. CE262/CW)

Salary £5,494-£6,055

Candidates should possess 7 years' relevant experience and a programming background. They should give evidence of their ability to take full responsibility for a project from initial studies to implementation.

Systems Analyst

(Ref. CE266/CW)

Salary £5,494-£5,797

Three years' relevant experience with practical programming knowledge and a desire to progress to project leadership.

Senior Programmer

(Ref. CE273/CW)

Salary £5,494-£5,797

Five years' programming experience, most of which should have been in COBOL and BAL, is expected. The ability to lead a team of programmers is essential. Initially, the successful candidate will be based at Bexley for about a year to assist in the preparation of a Rates System.

Programmers

(Ref. CE284/CW)

Salary £3,694-£4,900

Approximately two years' programming experience, some of which should have been in COBOL or BAL is expected, though training in either language can be provided.

If you would like to discuss any of the above positions, please ring Mrs. L. Harris, Systems Manager, on 01-690 4343 extension 68.

Application form, returnable by November 25th and detailed job description from Chief Personnel Officer, Town Hall, Catford, London SE6 4RU, or telephone 01-690 7666 (24-hour Ansafone service) quoting appropriate reference and job title.

COMPUTECH 01-794 0202

HERTS., BEDS. & BUCKS.

SALES SUPPORT — TERMINAL EQUIP — to £4,500

Can you advise users of a world wide network on the choice of terminal equipment best suited to their needs. Substantial U.K. travel involved.

COMPUTER OPERATORS — to £4,000

IBM, OS or DOS experience required.

SYSTEMS ANALYST — to £5,500

Minimum of 3 years' ICL/COBOL on commercial applications to work on System Development and Customer Support in bureau environment.

PRODUCT SUPPORT ANALYST — to £6,500

In depth experience on Operating Systems for mini equipment required for manufacturers support organisation. U.K. travel involved. Company car provided.

VACANCY LIST

Free list of vacancies in Herts., Beds., Bucks. and North London areas.

Contact: Roy Brackenbury, St. Albans 61373.

BLUE ARROW staff services

Blue Arrow House, 4 Holywell Hill, St. Albans, Herts.

TEESSIDE POLYTECHNIC
Computer Centre

PROGRAMMER ANALYST T1/5
COMPUTER OPERATOR T1/2

Applications are invited for the above posts.

The Computer Centre provides a service to the whole Polytechnic, and is planning to install a large modern computer in the next year providing interactive computing for terminals throughout the Polytechnic. A wide range of programming is undertaken, including systems programming and the development of applications software for the academic departments, the Library and the Administration.

Applicants for the PROGRAMMER ANALYST'S POST should normally be graduates or equivalent educational standard and preferably have two years' programming experience.

The starting salary will be at the appropriate point on the scale T1/5 £1,508-£4,815 (includes supplements) — minimum starting salary at age 21 — £2,326. A progressive career structure operates within the scale. For graduates the minimum scale will be T2 £2,983-£3,323.

Applicants for the COMPUTER OPERATOR'S post should have previous operating experience, and be prepared to work on a two shift basis. Salary: Technician T1/2 £1,508-£3,323.

Application forms and further particulars may be obtained from The Assistant Secretary (Academic), Teesside Polytechnic, Borough Road, Middlesbrough, Cleveland TS1 3BA, and are returnable within 10 days.

THE UNIVERSITY OF EXETER

LECTURERS IN COMPUTER SCIENCE

Applications are invited for two lectureships in the new Department of Computer Science, tenable from 1 September, 1978.

Candidates should have special interests and qualifications in at least one of the following fields: systems analysis and design; operating systems; computer languages and language theory, data base management, automatic programming; measurement and modelling of computer-based processing; symbolic and algebraic manipulation and social aspects of computing.

Salary on the lecturers' scale, £3333-£6655 p.a. It is intended that one of these appointments will be made at a commencing salary within the first four points of the scale (£3333-£3975 p.a.). Both appointments will be subject to a probationary period not exceeding three years with the prospects of permanency thereafter.

Further particulars may be obtained from Miss Doreen Watson, Administrative Assistant (Appointments), University of Exeter, Northcote House, Exeter EX4 4QJ, to whom applications (eight copies; overseas candidates one copy) should be forwarded by 1 December, 1977. Please quote reference number 1/36/3184.

THE QUEEN'S UNIVERSITY OF BELFAST

THE COMPUTER CENTRE

DIRECTOR

The Senate of the Queen's University of Belfast invites applications for the Directorship of the Computer Centre tenable from 1st January, 1978, or such other date as may be arranged. The Centre contains an ICL 1906S and an ICL 1904A and has 75 staff. The salary will be £8,798 per annum (under review) with contributory pension rights under FSSU/USS. Closing date: 16th December, 1977.

Further particulars may be obtained from the Personnel Officer, The Queen's University of Belfast, Belfast BT7 1NN, Northern Ireland. (Please quote Ref. 77/CW.)

UNIVERSITY OF NOTTINGHAM
School of Education

COMPUTER ASSISTANT

Applications are invited for the above post in which the responsibilities include advising staff and students on the preparation of data and procedures for running standard statistical programs and giving advice on the adaptation of programs. The successful applicant should be a competent Fortran Programmer preferably with experience of using on-line terminals.

Salary on a scale rising to £2875 per annum.

Further particulars and forms of application, returnable not later than November 24, 1977, from the Staff Appointments Officer, University of Nottingham, University Park, Nottingham NG7 2RD.

4th Generation Mainframe Systems Engineering and Sales

Amdahl are the fastest growing high performance computer manufacturers in the world. There are now over 70 Amdahl 470 systems installed world wide with the first UK system about to be installed. This is an opportunity to get in on the ground floor in the UK company which is responsible for installation in the UK and Northern Europe and for software support throughout Europe. The new UK operation is based in West London.

Mainframe Sales

The projected British sales effort based on detailed market evaluation calls for salesmen and women with at least 5 years experience, a high degree of technical competence and a proven record of success in marketing large systems. A number of posts are available where management experience would be highly desirable. The sales team can count on the support of fully trained and highly motivated engineering and software specialists based in the UK.

Field Systems Engineers

The requirement is for Systems Engineers who should have extensive knowledge and experience in the use of large IBM operating systems (MVS, SVS, VS/1, VM, VMT etc.) and a flexible and innovative approach to problems and diagnostic methods. Software support includes installation, sales support and on site operating system maintenance. Field systems engineers should be able to show that they are responsive to customers needs and have enough confidence in their technical ability to deal directly with users' senior management. Opportunities exist either in the central support group or for working directly with customers.

Amdahl have created a friendly environment in which enthusiasm, initiative and success are well rewarded. An exceptionally generous financial package can be negotiated.

Please apply in strict confidence with brief experience to date to:

Peter V. Williams, Managing Director, Amdahl (UK) Limited, Viking House, 29/31 Lampton Road, Hounslow, Middlesex TW3 1JD. Tel: 01-572 4312.

amdahl

HERTS AND NORTH LONDON

We specialise in D.P. recruitment for clients in Herts and North London and the following vacancies are taken from our current register:

ENFIELD

The Management Services Group of a highly respected ICL user has vacancies for Systems Analysts (up to £6000), Senior Programmers (up to £5500) and Programmers (up to £4600) to assist in the development of a range of T.P. and batch applications. Hardware will shortly include an ICL 2970, planning for which is well under way.

BOREHAMWOOD

Possibly the ideal installation — not too large, not too small. IBM based informal, friendly, but very professional. The vacancy is for a Systems Analyst (c £6000) to join a department of ten engaged in the development of both batch and real-time systems. Although applicants must have commercial systems experience neither IBM nor real time knowledge is necessary.

LUTON

Small department of 2 Analysts and 3 Programmers has a vacancy for an Analyst/Programmer with PDP Basic experience to assist a Project Leader in the investigation, design and development of Order Entry/Invoicing systems in addition to being responsible for the supervision and guidance of the Programmers within the team (up to £4700).

CITY, E.C.1

Small IBM System 3 RPG II installation, shortly to include a Univac 9025 is seeking an Analyst/Programmer (up to £6000) and a Programmer (up to £5250). Perks include free meals in a first class restaurant plus interest-free season ticket loans.

WALTHAM CROSS

A leading retail distribution group, known for its progressive attitude to D.P. development, offers dynamic career opportunities to all levels of Analysts (up to £8000), Analyst/Programmers and Programmers (up to £5000). Although the installation is based upon ICL 1904 hardware previous ICL experience is not a necessity as the company will arrange conversion training as required.

STANMORE

Centred around an IBM 370/125 and 2 Ventek minis using on-line VDUs for Stock Recording, our client has a vacancy for a Systems Analyst to make up a team of three shortly to begin development of financial real-time VDU systems. Commercial IBM experience is a basic requirement — real time training will be given where necessary (up to £5750).

For more information on these and many other vacancies ring

HAYMARKET COMPUTING LIMITED. Tel. CUFFLEY (HERTS) 4130
(UP TO 7.00 p.m.)

Recruitment Consultant

We are ideally seeking someone with a successful record in contract or permanent computer recruitment. Someone who enjoys the challenge of selling, negotiating and servicing the business he or she generates.

However, if you lack the recruitment experience but feel your selling abilities combined with your past computing experience would assure your success in this field ring us today.

The successful applicant can expect an excellent career opportunity with management prospects where remuneration is paid on ability by way of basic salary and commissionable income.

All applications will be treated in the strictest confidence. If you require any further information and/or confidential discussion on the above telephone us.

01-439-3671

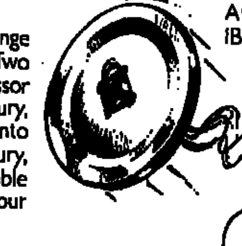
HEXAGON computer services

5th FLOOR SUITE 148 WARDOUR STREET LONDON W1

We're putting on weight in all the right places.

Datasolve Datasolve Datasolve

We're putting on weight at our main production centre in London's Oxford Street and at our headquarters in Sunbury-on-Thames. We're involved in a planned programme of expansion to keep pace with the ever increasing demand for our comprehensive DP service from a growing list of clients throughout commerce, industry and the public sector.



We already operate an impressive range of hardware at both locations. Two IBM 370/158's linked as a multi-processor in London and an ICL 2970 at Sunbury, the first, incidentally, ever to go into bureau operation. But now, at Sunbury, we're adding a further IBM compatible CPU with 4 Meg of core to increase our IBM services.

All this increased activity and additional hardware means that we're also having to put on some weight on the personnel side, too. To build up our strength so that we can cope with the increasing throughput of work in London and Sunbury. We're looking for additional high calibre PROGRAMMERS and OPERATORS, who can tackle a heavy work load. Men and women who enjoy the challenge of a wide range of interesting assignments and involvement with a variety of languages and operating systems in a high technology data processing environment. Our particular requirements are for IBM OS.

Support Programmers

Cost conscious, commercially orientated communicators with at least two years' experience who are able to work closely with clients in maximising program effectiveness. A good knowledge of COBOL, Assembler, PL1 or FORTRAN is required.

Systems Programmers

On line systems specialists for overall control of programs, trouble shooting, systems test and general systems work.

Operators

At senior and junior levels with the emphasis on IBM OS large mainframe installations, preferably with a knowledge of JCL.

At both locations we offer highly competitive salaries with ample opportunities for career advancement within the company which is the largest independent computer services organisation in the country.

Informal Interviews

If you're looking for heavyweight responsibility, then come along and see BOC Datasolve at informal interviews being held at our offices at:

214 Oxford Street, London W1
(nearest underground, Oxford Circus) on

Tuesday, 15th November
between
12 noon and 8 pm.

If you are unable to call in, then write with details of your experience to Tina McKay, Personnel Officer, BOC Datasolve Ltd., 214 Oxford Street, London W1N 0BR. Telephone: 01-637 7141.

BOC Datasolve

D.P. OPPORTUNITIES
Surrey
Shift Leader c. £4500
Computer Operator c. £3200

Birds Eye Foods situated at Walton-on-Thames in Surrey, require experienced computer personnel for our twin 2904 computer complex. This system is used not only for on line system but also as a H.A.S.P. work station, controlling a remote IBM 360/65. Suitable applicants will also be involved in the control of a network of 21 remote mini computers.

Applicants should have at least three years' operating experience, preferably ICL 1900, and must be prepared to work shift including weekend working.

In addition to an attractive and competitive salary and career opportunities we offer modern working conditions, excellent staff facilities and four weeks' annual holiday.

Please apply in writing giving details of age, qualifications, work experience and salary to;

R. A. Williams
Personnel Manager
Birds Eye Foods Limited
Station Avenue
Walton-on-Thames
Surrey

BIRDS EYE

HOLDERNESS BOROUGH COUNCIL - FINANCE DEPT.

PROGRAMMER/ANALYST

Applications are invited for the above post at Section Head level in the Computer Section of the Finance Department. The council has recently embarked on computer use for the first time taking on-line service from Humberside County Council's Honeywell computer.

The successful applicant will have a central roll to play in developing the use of this service and an ability to positively control and regulate the operational activities of the computer section (4) is essential. Opportunity will exist to be involved in both systems and programming work and experience in these fields is also relevant. Knowledge of COBOL is presumed, and training in other aspects will be provided. All-round experience will be gained in a sophisticated computing environment and a working relationship with the County Council computer staff is envisaged. The salary is negotiable on Grade A.P.5, £3,825-£4,095 plus salary supplement of £312 p.a., and earnings supplement comprising 5% of total earnings subject to a maximum of £17.38 per month.

Application forms can be obtained from Mr. K. G. Harbett at this office (Telephone Skirlaugh 62333, ext. 242).

Completed forms should be returned to the Chief Financial Officer, Council Offices, Skirlaugh, North Humberside, not later than noon of 25th November.

LANCHESTER POLYTECHNIC

HYBRID COMPUTER PROGRAMMER

Required for the analogue/digital/hybrid computing installation in the Department of Electrical and Electronic Engineering. Some digital computer programming experience is essential for this post and a basic knowledge of analogue computer techniques and/or electronics would be advantageous. A scientific engineering or mathematic HNC or degree level qualification is desirable. Training in programming for Honeywell 516/716 computing systems can be provided.

Salary: £3366-£3702 plus £312 plus 5% pay award per annum with possible progression to £4095 per annum.

For application form please apply in writing enclosing a foolscap stamped and addressed envelope to the Assistant Secretary (Personnel), Lanchester Polytechnic, Priory Street, Coventry CV1 5FB. Returnable within 10 days of the appearance of the advertisement.

RSPB
THE ROYAL SOCIETY FOR THE PROTECTION OF BIRDS

Britain's largest voluntary conservation organisation is looking for a MANAGER to be responsible for operation of computer (ICL 2903/20), order procedures and office organisation in its Sales Department.

Applicants, male or female, should have sympathy with the Society's aims and be interested in joining an enthusiastic, hard-working team.

Salary within range £3300-£3900 subject to review April 1978.

For further details and application form please write, enclosing s.a.e. to Miss Janice Robertson, RSPB, The Lodge, Sandy, Bedfordshire.

INTERDATA

Due to rapid expansion, this internationally known mini-computer manufacturer wishes to fill the following positions in the sales department:

- **2 Experienced Sales Executives**

  to work in the Midlands and the North of England. Preferably with mini-computer or bureau sales experience with a knowledge of the commercial and/or industrial scientific systems market. Quote earnings £8½-10K plus Company Car.

- **Sales Support Analysts**

  to provide pre-sales technical support to our sales force in the field. Enthusiasm, initiative, knowledge of Fortran, Cobol, and Operating Systems are the qualifications necessary for these demanding positions.

- **Sales Support Analysts**

  to provide in-depth technical support to our salesmen, executing and performing investigations into benchmarks, Operating Systems and developing demonstration systems. These positions will interest systems programmers/analysts who enjoy "hands on" work and wish to develop their existing expertise in COBOL, FORTRAN, CORAL and Operating Systems.

One of the (Field) Sales Support Analysts will be based at our Manchester Office, whilst the others will be based at the Company's offices in Slough. These positions will involve travel within the U.K. and occasional visits to the U.S.A.

The salaries for these posts will range from £5000 to £6500 plus a Company Car and the usual range of benefits.

For details and application form, please telephone

Tim Marlton for the Sales Executive positions

E. M. Bell for the Sales Support positions

INTERDATA LIMITED
227 Bath Road Slough SL1 4AX
Telephone Slough 34511

ANALYST/PROGRAMMER
c. £5,000

A challenging opportunity to join the computer department of an international firm of chartered accountants.

We are seeking a young person, with a good academic background, having at least 18 months' solid COBOL experience, to join an enthusiastic team engaged upon the development of audit package.

This is an exciting opportunity to increase your DP experience as you will be writing programs to run on a variety of frames, including IBM 370, ICL 2900 and Burroughs B. Future plans include the use of database techniques.

For further details and an application form, contact:

Craig Thrussell on 01-628 6088
or write to him at
Whinney Murray & Co.
57 Chiswell Street
London EC1Y 4SY

MYRIAD APPOINTMENTS LIMITED

Computer Personnel Consultants

BE SUCCESSFUL — JOIN MYRIAD

Senior and Junior Consultants

Recruitment consultancy at Myriad is unlike the conventional desk bound telephone job you might imagine. It entails visiting clients from all types of industry and meeting people from all walks of life. It provides immense satisfaction through assisting major organisations recruit computer professionals and ensuring individuals receive a confidential service geared to achieve their personal career progression.

Our consultants gain an interesting insight to a wide spectrum of industry and broaden their knowledge by exposure to the latest equipment and techniques being used with all types of manufacturers' equipment.

We are interested in talking to people who feel they may be interested in recruitment consultancy with Myriad. Applicants should either be experienced in recruitment or have a successful record in any area of data processing, in which case they will receive full training. They should be literate and seek success.

The Company is well established and provides excellent support to its consultants in this comparatively youthful sector of the d.p. service industry. Our consultants, success is limited solely by their own ability and they enjoy working in a professional environment without constraints.

The conditions of employment are very good and offer a secure and progressive future. An excellent commencing salary is further enhanced by a generous monthly profit sharing scheme geared to individual performance.

Please telephone for a confidential discussion or write to:
30 Fleet Street London EC4Y IAA
01-353 5868

THORNTON BAKER COMPUTER BUREAU

The bureau based in the Midlands, serves Thornton Baker & Co., a large national firm of chartered accountants. The department is growing steadily and a very active period of computer developments has been planned for the future.

Assistant to the Bureau Manager

c.£6,500

Responsible for control systems and programming development work as well as being the deputy for the Bureau Manager.

The successful candidate will be aged 25+ with a minimum of 5 years' systems/programming work and a knowledge of ICL hardware and software, Cobol and some experience of Database. An important quality will be the ability to communicate effectively with all levels of staff.

Reasonable relocation expenses will be available.

Ref: AC 131.

Operations Controller

c.£3,750

To be responsible for the operations of an ICL 2903.

A knowledge of operating systems and communication equipment preferably together with ICL 2903 experience.

The ideal candidate will probably have had 3 years' experience as a computer operator/data control clerk.

The salary will be dependent upon age, qualifications and experience.

Ref: AC 132

Applications giving brief details and quoting the above references should be addressed to:-

G.R. Jones, Thornton Baker Personnel Services Ltd., Kennedy Tower, St. Chad's Queensway, Birmingham B4 6EL.

Interviews for the above vacancies will be held throughout Britain.

A member of the Management Consultants Association.

THE UNIVERSITY OF ZAMBIA

Applications are invited for the following posts which will be created at the beginning of 1978, in the Educational and Manpower Computer Bureau of the Computer Centre. Both posts are established to implement the system to be used in the localization of the Cambridge Form V Examination in Zambia in 1980.

SYSTEMS ANALYST

Applicants must hold a degree or equivalent, with extensive experience in systems analysis and design. Preference of the implementation of examination systems or systems in other areas of educational administration.

COMPUTER PROGRAMMER (COMMERCIAL)

Applicants must hold a degree or equivalent, or 5 "O" levels or equivalent passes, and have considerable COBOL programming experience. The appointee will write and maintain COBOL programmes to run on the ICL 1905 computer with 2 x E.D.S. 30s in University Administrative systems. SALARY SCALE: K3600-K6108 p.a. (£1 sterling = K1.37). The British Government may supplement salaries in range £2220-£2004 p.a. (sterling) for married appointees and £330-£834 p.a. (sterling) for single appointees (reviewed annually and normally free of all tax) and provide children's educational allowances and holiday visit passages. Family passages and baggage allowances will be paid. Detailed applications (two copies) naming three referees, should be sent airmail to the Registrar (Establishment), University of Zambia, P.O. Box 2379, Lusaka. Closing date — 16 December, 1977. Applicants resident in UK should also send one copy to Inter-University Council, 90/91 Tottenham Court Road, London W1P 0DT. Further particulars may be obtained from either address.

oxford polytechnic

Programmer

A programmer is required in the Computer Centre of the Polytechnic. Applicants should have a degree or equivalent and have a good working knowledge of one or more of the following languages — FORTRAN, ALGOL, COBOL or PLAN. The Polytechnic has an ICL 1903T running under GEORGE II and MAXIMOP. Salary in the range £3366 to £3702 plus £312 and Phase 2 supplement.

Application forms and further details are available from:

The Administrator
Oxford Polytechnic
Oxford OX3 0BP

TECHNICAL AUTHORS

required to write Software Manuals. Experience in Fortran or Cobol.

Contract in Paris.
£5 per hour

Contact:
Willin Writing Services Ltd.
0252-41576

PROGRAMMERS

WEST COUNTRY
1900 COBOL
c £4000

Phone 01-439 6481
(24 hours)
EFFECTIA GRAVIS
Personnel Consultants

OPERATORS

YOUR CHANCE FOR A NEW CAREER IN THE NEW YEAR

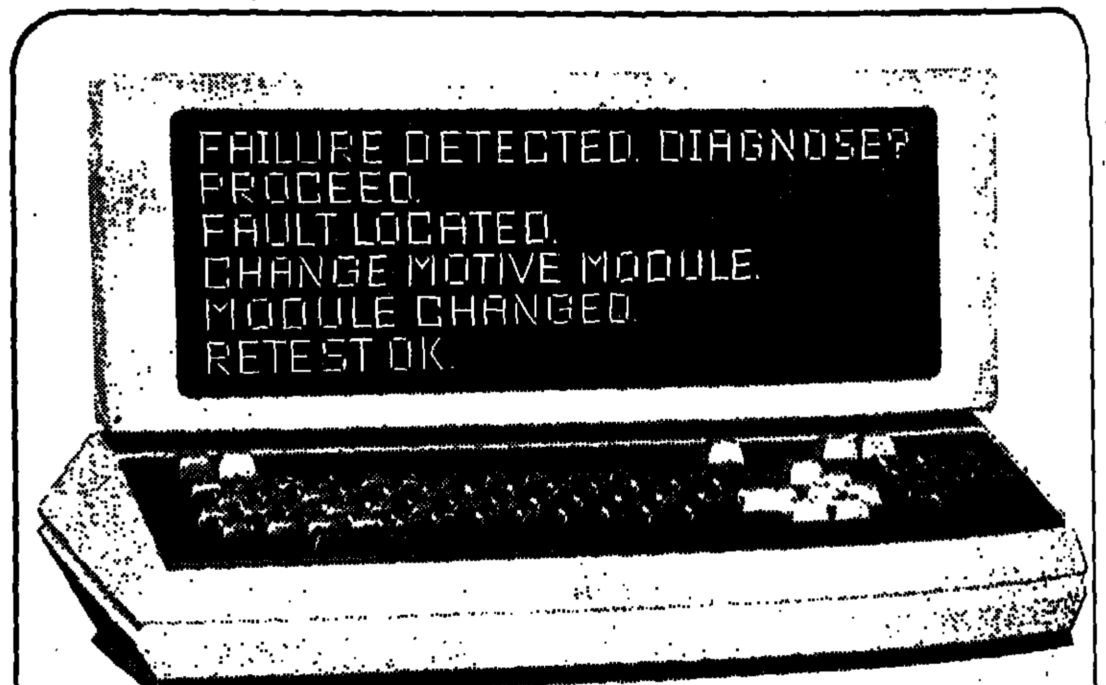
If you have been working on-shift for over 12 months now is the time when career progression, salary and the working environment is becoming important to you.

We have clients ranging from small rural sites to large bureau installations who are looking for operators with experience of IBM (inc. System 3), ICL, HONEYWELL or NCR mainframes.

Why not telephone me to discuss the range of opportunities available in the areas you wish to work.

Telephone in absolute confidence:
Ray Slattery

D.P. RECRUITMENT LIMITED
Kent House, 87 Regent Street, London W1R 7HF
Tel: 01-437 2062/3/4 (24-HOUR ANSAPHONE)



Diagnostics

Project Ptarmigan is a mobile, flexible, digital communications system for the British Armed Forces.

We require hardware and software personnel with an interest in diagnostics to develop and implement both diagnostic and executive software to achieve self diagnosis by the system.

Specific diagnostic experience is not essential but previous hardware and/or software experience is expected.

The Ptarmigan Switch Unit is one of the high technology businesses of the Poole site, which employs in total some 2,000 people, and provides a continuing opportunity for career advancement and development.

Plessey Poole is located in a particularly pleasant part of the South Coast. An attractive salary package is offered which includes immediate entry into the Company's pension/life assurance scheme. Where appropriate, generous relocation expenses will be paid.

Take advantage of this opportunity and contact George Wagstaff now on Poole (0201 3) 5161, reversing the charges, or write to him at The Plessey Company Limited, Sopers Lane, Poole, Dorset BH17 7ER, quoting ref. PV12.

PLESSEY

PRE AND POST SALES SUPPORT ANALYST

LONDON AND MIDLANDS

DISTRIBUTIVE PROCESSING

Salary circa £6,000 per annum, plus company car and excellent fringe benefits.

This is an excellent opportunity to gain experience in the new and exciting distributive processing industry.

Our clients have recently launched the first of such systems and the interest shown so far has been exceptional.

The company is a multi-national, successful corporation whose 'state of the art' products have always been innovative and ahead of their time.

The career opportunities for successful applicants are exceptional and progress into a management position will be made available in the medium term to candidates with the necessary qualifications.

Candidates should have experience in at least one of the following disciplines:

1. Sales Support of mini or mainframe computers.
2. Communication expertise.
3. Systems and programming analysts within either hardware or software companies.
4. Commercial Applications experience.

Our client will offer an above average salary plus a good company car and fringe benefits to those applicants who are able to convince us of their drive, enthusiasm and innovative qualities.

Insight Marketing & Personnel Consultants Ltd.
72-75 Marylebone High Street
London W1M 4AJ
Telephone: 01-486 5644

Please telephone the advising consultant for a confidential discussion.

Ref. No. CW160

SALES MANAGER DESIGNATE

Engineering Services

BASE INCOME TO £9,000 per annum — TOTAL INCOME £10,000 per annum plus

COMPANY CAR — EXCELLENT PENSION SCHEME PLUS GOOD FRINGE BENEFITS

Our clients have established themselves at the forefront of the European computer services industry and could be described as the **COMPLETE SERVICES AGENCY.**

Because of an increased demand for their engineering services, they have decided to launch a separate division specialising in technical and engineering applications.

This is a genuine and progressive career opportunity which would appeal to those people looking for their first management role or indeed sales managers looking for an increased income and greater responsibilities

Candidates should be able to demonstrate a successful track record in one or more of the following disciplines:

1. Experience in the sales or support of engineering packages.
2. A civil or electronics engineering background.
3. Sales support in engineering applications with a bureau or software house.
4. Engineers with a determination to break into a sales career.

The reputation of our clients for career development and employee relations is probably the best in the industry and the successful candidate can look forward to a progressive and exciting career

COMPENSATION PLANS

Sales Manager Designate

Base salary negotiable from £6,000 per annum: a first year guarantee to £9,000 per annum. A commission structure based upon a very realistic quota yielding circa £10,000 per annum. A company car and all expenses provided.

ACCOUNT MANAGER

Basic salary circa £6,000 per annum. First year guarantee, potential income £9,000. A company car and full expenses are also offered.

For an immediate discussion regarding these exciting positions, please telephone DEAN WILLIAMS quoting Reference Number CW161.

Insight Marketing & Personnel Consultants Ltd.
72-75 Marylebone High Street
London W1M 4AJ
Telephone: 01-486 5644

data analyst

We are a large, long-established printing company internationally famous for quality colour printing. We also have strong publishing and retail interests.

We are expanding our computer operations to provide improved management information and control initially in areas of production planning, estimating and cost control. Applicants should have experience of programming and systems analysis and be capable of working closely with production and line management, recognising the appropriate basic data, rationalising and interpreting for computer application.

This is a new appointment which carries an attractive salary and assistance with removal expenses.

Please telephone to discuss, or write with full details to: Mr G. Rowe, Personnel Manager, Jarrold Printing, Whitefriars, Norwich NR3 1SH. Tel: 60211.

JARROLD printing

Senior Systems Analysts/Programmers for Ireland

-Opportunities in Dublin and Belfast

NCR offers excellent prospects to experienced Analysts/Programmers with experience of disc-based computers and a sound programming background, for its Systems Services Division in Ireland.

You will implement new installations – NCR Century, NCR Criterion and NCR 8260/8230 systems; work on the updating of existing installations as customers adopt more sophisticated equipment and techniques; carry out surveys of NCR user requirements and assist in presenting systems ideas to customers.

For the DUBLIN vacancies the basic requirements are three years Century B1, B2 and B3 operating systems experience and a working knowledge of NEAT 3, Level 2. In addition, on-line systems experience would be an advantage.

For BELFAST we need a programmer/analyst with two years experience of COBOL.

These are definite career development positions for ambitious Analysts/Programmers eager to extend their knowledge in an active environment. The earnings potential is first class, plus all the fringe benefits of a major international organisation.

Interested? Then drop me a line and tell me something about your background.

H. J. Redington, Personnel Controller, NCR Limited, 206/216 Marylebone Road, London NW1 6LY.

NCR

EDUCATION DEPARTMENT
MONKWEARMOUTH COLLEGE OF FURTHER EDUCATION

LECTURER—COMPUTING AND DATA PROCESSING

Grade I (£2,913-£4,869)

required in the College's Department of Science and Technology.

Applicants should possess at least Part I Membership of the British Computer Society of equivalent qualifications. Previous teaching experience an advantage.

Application forms and further particulars available upon receipt of stamped, addressed envelope from the Principal, Monkwearmouth College of Further Education, Swan Street, Sunderland SR5 1EB.

Closing date for application: 30th November, 1977.

L. A. BLOOM
Chief Executive

Borough of Sunderland

PROGRAMMERS

WEST COUNTRY
1900 COBOL
c £4000

Phone 01-439 6481
(24 hours)
EFFECTIA GRAVIS
Personnel Consultants

CAPITAL APPTS.

COMPUTER SERVICE ENGINEERS

All areas

34, Percy St.

637 5551 day: 445 0468 eve.

William Key

Please telephone or write to: Liz Segal, William Key & Partners Ltd., 504/8 Corn Exchange Buildings, Corporation Street, Manchester M4 3DD. 061-834 2271, during office hours. 061-928 5495 at other times.

Application forms are a bore!

So, to get that new job you want in the North of England, just complete ours and let us find it for you.

Analysts, Programmers, Salesmen and Support Staff are required by our clients who include Manufacturers, Users and Software Houses. Salaries are from £3,500 upwards.

Ref. CW9521

SYSTEMS ANALYST (ACCOUNTING PROJECTS). London, £8,000-£8,000. Required to join a group of projects concerned with internal accounting... To review and appraise existing and new systems. IBM 360/370 useful. ... rewarding position.

SENIOR SYSTEMS ANALYSTS. London, Herts., Surrey, Middx. £5,300-£... You must have at least 3 years systems design experience and have completed major commercial or business financial projects. Good and effective communicator with professional approach to computer systems. These positions offer excellent job satisfaction and promotions.

Ring: 01-242 1166 daytime
01-670 2609 evening for PROMPT ACTION

HUNTER APPOINTMENTS
Specialists in Computer Staff
Vernon House, 23 Sicilian Avenue
Southampton Row, London WC1A 2QH
TUBE: Holborn (Kingsway)

COMPUTING SYSTEMS CONSULTANCY

SYSTEMS DESIGNERS LIMITED

SENIOR CONSULTANCY APPOINTMENTS
SALARIES TO £9,000 PLUS BENEFITS

Systems Designers is a leading, and expanding, British systems consultancy specialising in mini and micro-computer applications.

Growing demand for our high quality service means we need top calibre consultants who will establish themselves as leaders in their fields. In addition to their consultancy and research activities, our consultants become involved in projects from the proposal stage and deal directly with clients. A degree of self-motivation is therefore essential, together with eagerness to extend company activities. There are opportunities to contribute to the extensive research programme, through which the company has a good record of attracting government sponsorship for important technological developments.

Head office is in Frimley, Surrey, and we have a nearby centre for the production of microprocessor systems and turnkey management. Our turnover in professional fees is in excess of £1M; we are a British private company with backing from the NEB. Excellent benefits and working conditions include profit sharing and a lively Sports and Social Club.

We are particularly keen to meet senior consultants who are already established in their fields, but will be pleased to discuss opportunities with any top professional able to contribute in our challenging environment.

Please write or telephone:

DEFENCE

We are currently providing computing consultancy support to the Ministry of Defence at the level of overall system definition studies through to implementation for very large and small air and ground defence systems. This includes work in the areas of system interoperability for integrated defence requirements, data link networks, distributed information processing, etc. We have challenging and creative career positions for qualified computer systems consultants who have worked in any of the above fields for more than six years.

INDUSTRIAL CONTROL

We have posts available for senior computer software and systems consultants who have had at least six years' experience of introducing real time and control systems into industrial plant processes. We are looking for computing engineers who are aware of the problems of providing high availability, easily maintained systems in the harsh environments encountered in this field.

SOFTWARE ENGINEERING

We require consultants and software specialists who have a deep understanding and interest in Software Engineering Techniques to work on current contracts we have in this field. Professional, qualified personnel are needed, conversant with software management practices, computer system design methodologies, structured implementation techniques, software verification programs and definition languages. Our current involvement is at the forefront of this high technology field.

Alan Wheeler, Systems Director, at Systems House, 57-61 High Street, Frimley, Surrey, GU16 5HJ.
Telephone: Camberley (0276) 63471.

Free Lance Operators

Operators with experience of ICL 1900/George 3 urgently required for short to medium term employment in a large installation located in North Herts. Apply to Box Number 1905, Computer Weekly, Dorset House, Stamford St, London SE1

SALES TRIP BERMUDA!
SALES EXECUTIVE £10,000 + car

Recognised as one of the largest/most successful mini computer manufacturers in the world. Extensive user base built on a reputation for first-class systems/engineering support, strong management, enlightened marketing and a sound financial basis (t/o exceeds £100m). Share in this reputation — enjoy high rewards — enhance your career prospects. Excellent training U.K. and United States prepared you for success. Generous basic (reviewed this year) + realistic targets means high commission + car. In 1976 20% earned a 5-figure income and the best went to Bermuda! Book your flight now! Ref. SS 1058

cb executive (KINGSTON) 01-546 9473

PROGRAMMERS
SOUTH COAST
COBOL OR ASSEMBLER
c £4200
Phone 01-439 6481
(24 hours)
EFFECTIA GRAVIS
Personnel Consultants

NORTH AFRICA
c £10,000
SENIOR PROGRAMMER
French speaking with substantial Burroughs Medium Systems ... Base experience. Accommodation plus usual large company ...
Telephone 01-989 2101 or 02802 71 ...

Computer Specialists

Atkins Computing have become established as one of the leading timesharing and remote access service companies in the U.K., with several regional offices and a sales and service centre in Holland. As part of our continued growth we need to strengthen our support function and the following Specialists, male or female, are required:—

Engineering Programmers
To join our growing team of graduate engineers who are complementing their engineering experience with the skills of programming and using this to write and maintain engineering programmes. Vacancies, for Civil Engineers with some familiarity of programming, at Epsom, and for Civil and Mechanical Engineers at our Teesside branch.
Contact: Clive Stirling.

APL Support Programmers
Support Programmers with a problem-solving background to work with our sales team. They should have previous experience of APL although FORTRAN could be considered.
Contact: Steve Thompson.

Support Analyst/ Programmers
To join our Management Services Department. Applicants should have a background of Management Information Systems and project leader potential. Knowledge of APL or FORTRAN is necessary together with relevant experience in a financial area.
Contact: Steve Thompson.

Commercial Analyst Programmers and Programmers
To join our Business Systems Department to undertake development of On-Line and batch systems to meet the needs of an expanding client base. Applicants should have at least eighteen months' COBOL experience, have completed one or more projects, and be used to meeting tight schedules without constant supervision. Experience of On-Line Data Entry, On-Line Sales Order Processing, Accounting Packages or Stock Control would be of particular interest.
Contact: Paul Venn.

Software Support
We also have opportunities for graduates with a technical programming background, ideally with a working knowledge of ASSEMBLER and/or FORTRAN, and who have perhaps worked with small computers or in a software house. Our System Support Group provide and maintain operating System Software and give Software Support during operational hours, so ensuring our traditional high standard of service. We also plan to develop Software to meet the Company's long term plans.
Contact: Roger Coley.

Please contact managers specified on Epsom 40421, or write giving brief personal and career details to the address below. We offer a pleasant working environment and generous relocation expenses where necessary.

Atkins Computing Services Limited, Woodcote Grove, Ashley Road, Epsom, Surrey KT18 5BW.

Atkins Computing

Programmers

Other companies might match us in technology. But our benefits and conditions leave them standing

It's hardly surprising that one of the largest international banks in the world leads the banking industry in the sophistication of its computer usage. And again, it's hardly surprising that such an organisation pays its computer personnel competitive salaries *and* provides a benefits package it would be extremely difficult to match: low-cost mortgage, personal loan plan, non-contributory pension, subsidised restaurant, and interest-free season ticket loan.

We're offering at least £4500pa – and just see how *you* would benefit – professionally, personally and financially – with Citibank.

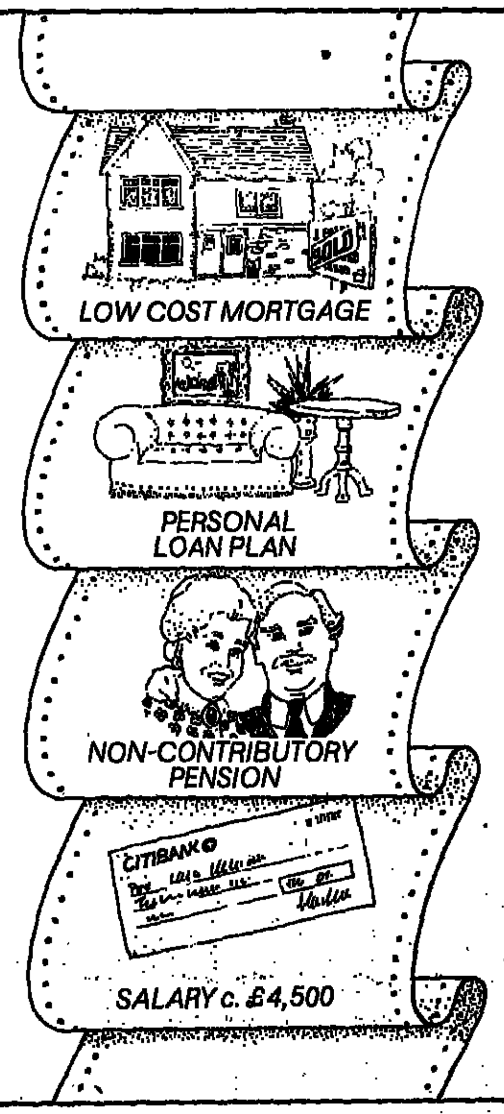
The work

Our configuration, located in our EDP Division in *Lewisham, SE London*, is an IBM 370/135 operating under DOS/VS and PDP 11/70's operating under RSX-11. We're looking for bright young people for these new jobs with at least a year's programming experience – ideally more – with IBM and/or DEC, COBOL, BAL and MACRO 11 languages. You'll join a team supporting existing projects and helping to develop new ones from scratch, getting involved in each stage so that you actually see your work through to implementation. An opportunity that is not readily available to Programmers these days.

And the prospects

Citibank can offer you genuine long-term career prospects – the kind you probably can't hope to get for several years in your present job. You should be capable of taking on team leadership quickly. We have a history of in-house career development and today's new entrants could be tomorrow's managers.

Discover more by sending your CV to: Edward W. Clark, Citibank NA, Citibank House, 336 Strand, London WC2R 1HB. Telephone: 01-240 1222.



CITIBANK

DATA CONTROLLER

West End **Oil Company**

We require a Data Controller to join the Operations Group at our West End Data Centre. The installation comprises an IBM 370/135 operating under OS/VS1 with teleprocessing links to several European centres.

The successful applicant, who will have around 2 years' experience in the data control area using OS JCL, will be responsible for many aspects of job submission and follow-up.

We offer an attractive starting salary, together with excellent benefits, such as 4 weeks' holiday, 60p LVs per day, contributory pension scheme and season-ticket loan.

For further information, and an application form, please contact.

Brian McLintock
AMOCO EUROPE INC.
33 Cavendish Square
London, W1M 3HF
Tel: 01-408 2195

HALTON BOROUGH COUNCIL
Chief Finance Officer's Department
TRAINEE COMPUTER ASSISTANT
Grade Clerical 2 £2685-£3241 p.a. inclusive of phase I and 2 supplement

Applications are invited for the above post of trainee Computer Assistant within the computer section

This position will provide valuable experience to a person in the early stages of a career in computing. The authority currently operates an ICL 1901 computer, but an order has been placed for an ICL 2904 with discs, magnetic tapes and DDE's in the Autumn of 1978. Candidates should have a good educational background. A knowledge of programming especially in COBOL would be an advantage.

Applications in writing (no forms), stating age, qualifications, experience, and any other supporting information together with the names and addresses of 2 referees, should be submitted to the undersigned not later than 18th Nov. 1977.

R. Turton, Chief Executive, Municipal Building, Kingsway, Widnes, Cheshire.

ANALYSTS AND PROGRAMMERS

In line with current expansion plans, Tangent Computer Services, the Essex based Systems and Software consultancy, now have a number of vacancies for experienced personnel. Salary ranges are from £4,500 p.a., contract fees are in line with market rates

SMALL BUSINESS SYSTEMS DIVISION
Self-motivated people with sound COBOL and/or RPG background required at all levels. They will complement or head up small project teams for developing systems on our in-house equipment.

MARK IV SUPPORT DIVISION
Highly experienced professionals to join our consultancy and training team.

CONTRACT DIVISION
Current requirements for experienced commercial programmers/analysts on London/S.E. assignments include:
IBM COBOL, assembler, PL/1, MARK IV, IMS
ICL COBOL
Overseas projects for INTEL 80/80 Assembler programmers.

Please telephone or send career details to:
TANGENT COMPUTER SERVICES, BROOK HOUSE, 4 EASTERN ROAD, ROMFORD, ESSEX, RM1 3PJ. TEL: ROMFORD (STD 0708) 28235.

Tangent COMPUTER SERVICES

THE SALES BIT

How familiarity breeds a barrier to the sale

A PARTICULAR feature of the computer industry, in comparison with other longer established industries is the way in which Christian names are used so freely.

On the briefest acquaintance, regardless of rank, it is normal practice for dialogue to take place on first name terms.

This must to a great extent be a function of the North American influence upon the industry which has brought with it a more casual attitude towards personal relationships.

For people who are new to the computer business this is particularly refreshing, and it gives to all of us a feeling that we are working within a friendly and democratic industry.

However, such an environment contains many pitfalls for the naive and insensitive. "Familiarity breeds contempt" is an old saying well known to all of us, but it has a particular significance for salesmen, particularly those who listen as opposed to those who only hear.

"Familiarity" and its close relative "flippancy" are seldom endearing qualities; on the contrary, they are perhaps two of the better devices for destroying empathetic communications within a negotiationary environment.

What might appear to the salesman to be a personal attitude of friendliness and enthusiasm might be seen by his client as casual and disrespectful.

Don't ever be the first to use Christian names. That should always be the prerogative of the buyer. What is more important, make it clear that you have respect for him, his company and its product, simply by your manner and the words you use.

"Hi, Fred" may seem to be a nice cheery first-time greeting to the president of an international corporation.

A man of that stature will certainly be too smart to let you know his real reaction; but rest assured you will have created an instant barrier which will subsequently have to be taken down again, brick by brick.

One might expect this failing to be limited to the young and inexperienced salesman, but not necessarily so.

It is more a function of self awareness and sensitivity, and unfortunately there are many so-called experienced salesmen and egocentric technicians around the computer industry, whose personal objectivity and sales sensitivity is no more developed than it was when they started out.

A number of years ago I was on a sales training course, and during a role playing exercise I had to make a call on a well established client.

In order to demonstrate the good relationship I was able to generate between my client and myself, and also hopefully to throw the instructor, I started the call by saying, "Good morning, Mr Smith. I had a super time with your daughter last night." Without any sign of reaction at all he looked me straight in the eye, and said "Then you will be sad to learn that she died this morning!"

Get out of that!

TRADER

PRODUCTS

More print capacity

GREATER off-line printing capacity is offered with the DOC-TPS tape-to-print system from Documentation Inc of Melbourne, Florida.

Up to four of Documentation's high speed line printers may be configured into the system to provide print speeds ranging from 1,250 to 9,000 lpm on a single system.

Documentation's printers are specified to print up to six parts which will give the user the equivalent of 54,000 lpm per system. The DOC-TPS operates with between one to four industry compatible tape decks and with one central controller.

Other features include compatibility with Burroughs, Honeywell and IBM tape equipment, top of forms restart, and forms and line counts for job accounting records.

Delivery is quoted in the US from between 30 and 45 days from the receipt of order. Twelve configurations are available with lease rates ranging from approximately \$2,600 to \$9,573 (£1,500 to £5,500) per month.

Documation Inc (CW), PO Box 1,240, Melbourne, Florida, 32901, USA. Tel: (305) 724 1111.

Silencers

THE Commercial Acoustics of London range of 70 silencer covers is now available in the Netherlands from the leading Dutch wholesaler Handelsonderneming Electro Cirkel of Rotterdam.

Handelsonderneming Electro Cirkel (CW), Polderlaan 3, Rotterdam, Netherlands. Tel: (010 31 10) 851088.

VDU

A VISUAL display terminal which is compatible with the Univac Uniscope 100 and 200 is available from Pragma. Based on the proven Beehive B400, the new Uniscope Emulators are claimed to offer all the Uniscope features.

The terminals can be linked in a daisy chain, thus eliminating the need for multiplexers. No modifications to software, communications protocols or operating procedures are needed.

Pragma Ltd (CW), Middlesex House, 29 High Street, Edgware, Middlesex. Tel: 01-952 8471.

Puzzle answer

MOVE the arrowed matches downwards as shown, and shift the button to the left.